TOSHIBA

FILE NO. 810-200561

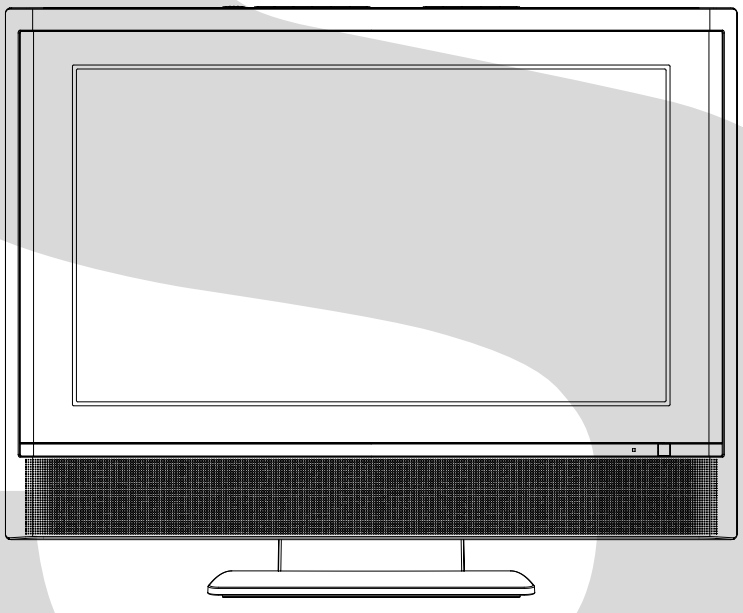
SERVICE MANUAL

COLOR STREAM® HD SRS WOW HDMI DOLBY DIGITAL

THEATERWIDE HD HDTV MONITOR DVD VIDEO COMPACT disc DIGITAL AUDIO LCDVD™

LCD TV/DVD

17HLV85



DOCUMENT CREATED IN JAPAN, July, 2005

TOSHIBA AMERICA CONSUMER PRODUCTS, L.L.C.
Head Office
82 Totowa Road, Wayne, NJ 07470
National Service Division
1420B Toshiba Drive, Lebanon, TN 37087

CableClear, ColorStream, TheaterWide and StableSound are registered trademarks of Toshiba America Consumer Products, L.L.C.
LCDVD and GameTimer are trademarks of Toshiba America Consumer Products, L.L.C.

TOSHIBA

Printed in Thailand

TOSHIBA

ENERGY STAR PARTNER

OWNER'S MANUAL
LCD TV/DVD

COLORSTREAM HD · DOLBY DIGITAL · SRS WOW · HDMI
THEATERWIDE HD · HDTV · DVD VIDEO · DIGITAL VIDEO DISC · LCDVD

17HLV85
20HLV85

Owner's Record
The model number and serial number are on the back of your TV/DVD. Record these numbers in the spaces below. Refer to these numbers whenever you communicate with your Toshiba dealer about this TV/DVD.

Model number: _____
Serial number: _____

© 2005 TOSHIBA CORPORATION
All Rights Reserved

Always read and understand the **PRODUCT WARNINGS and USER DIRECTIONS** that are contained in this manual before attempting to use your television, to help ensure its safe use.
Always store this manual near your television for convenient future reference.

Dear Customer,

Thank you very much for purchasing this Toshiba television.

You must carefully read and understand all of the safety instructions contained in this manual before you attempt to use this product in order to avoid potential hazards that could cause bodily injury or property damage or could damage your Television.

We hope that you are completely satisfied with your Toshiba television and that it will give you long and enjoyable service. We look forward to providing you with additional Toshiba products to serve all of your entertainment needs in the future.

Safety Precautions

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION
RISK OF ELECTRIC SHOCK! DO NOT OPEN.

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle, is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

CAUTION: To reduce the risk of electric shock, do not use the polarized plug with an extension cord, receptacle, or other outlet unless the blades can be inserted completely to prevent blade exposure.

WARNING: Handling the cord on this product or cords associated with accessories sold with this product will expose you to lead, a chemical known to the State of California to cause birth defects or other reproductive harm. ***Wash hands after handling.***

ENERGY STAR® qualified TV. Products that earn the ENERGY STAR prevent green house gas emissions by meeting strict energy efficiency guidelines set by the U.S. Environmental Protection Agency and the U.S. Department of Energy. ENERGY STAR and the ENERGY STAR mark are registered U.S. marks.

WARNING: Always use the Toshiba wall bracket specified below or another wall bracket approved by Toshiba for wall mounting this television. The use of any wall bracket other than the Toshiba wall bracket specified below or another wall bracket approved by Toshiba for wall mounting this television could result in serious bodily injury and/or property damage.
In the U.S.:
Use Toshiba wall bracket model number **FWB2027**. For more information, call TACP's Consumer Solutions Center at 1-800-631-3811 or visit TACP's website at **www.tacp.toshiba.com**.
In Canada:
Call TCL's Customer Service Department at 1-800-268-3404.

NOTE TO CATV INSTALLERS

This is a reminder to call the CATV system installer's attention to Article 820-40 of the NEC, which provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to grounding system of the building, as close to the point of cable entry as practical. For additional antenna grounding information, see item 17 on page 4.

Child Safety

It Makes A Difference Where Your TV Stands

Congratulations on your purchase!
As you enjoy your new TV, keep these safety tips in mind:

The Issue

- If you are like most consumers, you have a TV in your home. Many homes, in fact, have more than one TV.
- The home theater entertainment experience is a growing trend, and larger TVs are popular purchases; however, they are not always supported on the proper TV stands.
- Sometimes TVs are improperly secured or inappropriately situated on dressers, bookcases, shelves, desks, audio speakers, chests, or carts. As a result, TVs may fall over, causing unnecessary injury.

Toshiba Cares!

- The consumer electronics industry is committed to making home entertainment enjoyable and safe.
- The Consumer Electronics Association formed the Home Entertainment Support Safety Committee, comprised of TV and consumer electronics furniture manufacturers, to advocate children's safety and educate consumers and their families about television safety.

Tune Into Safety

- One size does NOT fit all! Use appropriate furniture large enough to support the weight of your TV (and other electronic components).
- Use appropriate angle braces, straps, and anchors to secure your furniture to the wall (but never screw anything directly into the TV).
- Carefully read and understand the other enclosed instructions for proper use of this product.
- Do not allow children to climb on or play with furniture and TVs.
- Avoid placing any item on top of your TV (such as a VCR, remote control, or toy) that a curious child may reach for.
- Remember that children can become excited while watching a program and can potentially push or pull a TV over.
- Share our safety message about this hidden hazard of the home with your family and friends. Thank you!

CEA Consumer Electronics Association
2500 Wilson Blvd.
Arlington, VA 22201 U.S.A.
Tel. 703-907-7600 Fax 703-907-7690
www.CE.org
CEA is the Sponsor, Producer and Manager of the International CES®

FCC compliance information

CAUTION: TO PREVENT ELECTRIC SHOCK DO NOT USE THIS POLARIZED PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

Federal Communications Commission (FCC):
This equipment complies with Part 15 of the FCC rules.

FCC Declaration of Conformity Compliance Statement (Part 15):
The Toshiba 17HLV85/20HLV85, LCD TV/DVD Combination complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

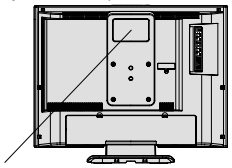
The party responsible for compliance to these rules is:
Toshiba America Consumer Products, L.L.C.
82 Totowa Rd. Wayne, NJ 07470.
Ph: (800) 631-3811

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by removing and applying power to the equipment, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION: Changes or modifications to this equipment not expressly approved by Toshiba could void the user's authority to operate this equipment.

CAUTION:
THIS DIGITAL VIDEO PLAYER EMPLOYS A LASER SYSTEM.
TO ENSURE PROPER USE OF THIS PRODUCT, PLEASE READ THIS OWNER'S MANUAL CAREFULLY AND RETAIN FOR FUTURE REFERENCE. SHOULD THE UNIT REQUIRE MAINTENANCE, CONTACT AN AUTHORIZED SERVICE LOCATION.
USE OF CONTROLS, ADJUSTMENTS OR THE PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.
TO PREVENT DIRECT EXPOSURE TO LASER BEAM, DO NOT TRY TO OPEN THE ENCLOSURE. VISIBLE LASER RADIATION MAY BE PRESENT WHEN THE ENCLOSURE IS OPENED. DO NOT STARE INTO BEAM.

Location of the required Marking
The rating sheet and the safety caution are the rear of the unit.



CERTIFICATION: COMPLIES WITH FDA RADIATION PERFORMANCE STANDARDS, 21 CFR SUBCHAPTER J.

IMPORTANT SAFEGUARDS

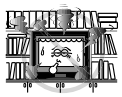
1. **READ INSTRUCTIONS**
   All the safety and operating instructions should be read before the unit is operated.
2. **RETAIN INSTRUCTIONS**
   The safety and operating instructions should be retained for future reference.
3. **HEED WARNINGS**
   All warnings on the unit and in the operating instructions should be adhered to.
4. **FOLLOW INSTRUCTIONS**
   All operating and use instructions should be followed.
5. **CLEANING**
   Unplug this unit from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Clean only with a dry cloth.
6. **ATTACHMENTS**
   Do not use attachments not recommended by the product manufacturer as they may cause hazards.
7. **WATER AND MOISTURE**
   Do not use this unit near water. For example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool.

8. ACCESSORIES
Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold ith the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.

DANGER:
RISK OF DEATH, SERIOUS PERSONAL INJURY, OR EQUIPMENT DAMAGE.

PORTABLE CART WARNING
(symbol provided by RETAC)

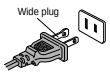
S3126A



8A. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

9. VENTILATION
Slots and openings in the cabinet back or bottom are provided for ventilation, and to ensure reliable operation of the unit, and to protect it from overheating. These openings must not be blocked or covered. The openings should never be blocked by placing the unit on a bed, sofa, rug, or other similar surface. This unit should never be placed near or over a radiator or heat source. This unit should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

Wide plug



10. POWER SOURCE
This unit should be operated only from the type of power source indicated on the rating plate. If you are not sure of the type of power supply to your home, consult your appliance dealer or local power company.

11. GROUNDING OR POLARIZATION
This unit is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet.

12. POWER-CORD PROTECTION
Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

13. LIGHTNING
To protect your unit from a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the unit due to lightning and power line surges.

14. POWER LINES
An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall onto or against such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits, as contact with them might be fatal.

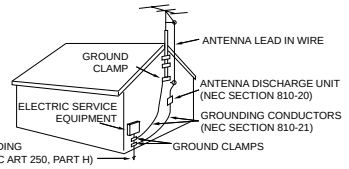
15. OVERLOADING
Do not overload wall outlets and extension cords, as this can result in a risk of fire or electric shock.

16. OBJECT AND LIQUID ENTRY
Do not push objects through any openings in this unit, as they may touch dangerous voltage points or short out parts that could result in fire or electric shock. Never spill or spray any type of liquid into the unit.

17. OUTDOOR ANTENNA GROUNDING
If an outside antenna or cable system is connected to the unit, be sure the antenna or cable system is grounded to provide some protection against voltage surges and built-up static charges, Section 810 of the National Electrical Code (NEC), ANSI/NFPA 70, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

EXAMPLE OF ANTENNA GROUNDING AS PER THE NATIONAL ELECTRICAL CODE

NEC-NATIONAL ELECTRICAL CODE S2898A


ANTENNA LEAD IN WIRE
GROUND CLAMP
ANTENNA DISCHARGE UNIT (NEC SECTION 810-20)
ELECTRIC SERVICE EQUIPMENT
GROUNDING CONDUCTORS (NEC SECTION 810-21)
GROUND CLAMPS
POWER SERVICE GROUNDING ELECTRODE SYSTEM (NEC ART 250, PART H)

18. SERVICING
Do not attempt to service this unit yourself, as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
For example:
a. When the power-supply cord or plug is damaged.
b. If liquid has been spilled, or objects have fallen into the unit.
c. If the unit has been exposed to rain or water.
d. If the unit does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions, as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the unit to its normal operation.
e. If the unit has been dropped or the cabinet has been damaged.
f. When the unit exhibits a distinct change in performance, this indicates a need for service.

19. REPLACEMENT PARTS
When replacement parts are required, be sure the service technician uses replacement parts specified by the manufacturer or those that have the same characteristics as the original part.
Unauthorized substitutions may result in fire, electric shock or other hazards.

20. SAFETY CHECK
Upon completion of any service or repairs to this unit, ask the service technician to perform safety checks to determine that the unit is in proper operating condition.

21. HEAT
The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

22. DISC SLOT
Keep your fingers well clear of the disc slot as it is closing. Failure to do so may cause serious personal injury.

23. CONNECTING
When you connect the product to other equipment, turn off the power and unplug all of the equipment from the wall outlet. Failure to do so may cause a product damage. Read the owner's manual of the other equipment carefully and follow the instructions when making any connections.

24. HEADPHONES
When you use headphones, keep the volume at a moderate level. Using headphones continuously at a high volume may cause hearing damage.

25. LASER BEAM
Do not look into the opening of the disc slot or ventilation opening of the product to see the source of the laser beam. Doing so may cause sight damage.

26. DISC
Do not use a cracked, deformed, or repaired disc. These discs are easily broken and may cause serious personal injury and product malfunction.

27. LCD
Do not press on or jolt the LCD panel. Doing so may cause the LCD panel glass to break and injury may occur. Should the LCD panel be broken and liquid leaks out, do not inhale or swallow it. Doing so may cause poisoning. If you have got it into your mouth, wash it out and consult your doctor. If your hands or clothes have touched it, wipe them with alcohol and a cleaning cloth and then wash them well.

28. NOTE TO CABLE TV SYSTEM INSTALLER
This reminder is provided to call the Cable TV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

ON DISPOSAL

This product contains mercury. Disposal of mercury may be regulated due to environmental considerations. For disposal or recycling information, please contact your local authorities or the Electronic Industrial Alliance: www.eiae.org.

Precautions

Important notes about your LCD TV

The following symptoms are technical limitations of LCD Display technology and are not an indication of malfunction. Therefore, Toshiba is not responsible for perceived defects resulting from these symptoms.

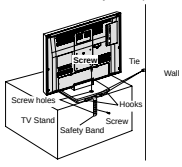
1) An afterimage (ghost) may appear on the screen if a fixed, nonmoving image is displayed for a long period of time. The afterimage is not permanent and will disappear in a short period of time.
2) The LCD panel contained in this TV is manufactured using an extremely high level of precision technology; however, there may be an occasional pixel (dot of light) that does not operate properly (does not light, remains constantly lit, etc.). This is a structural property of LCD technology, is not a sign of malfunction, and is not covered under your warranty. Such pixels are not visible when the picture is viewed from a normal viewing distance.
Note: Interactive video games that involve shooting a "gun" type of joystick at an on-screen target may not work on this TV.

Notes on handling

- Do not subject the LCD panel to physical shock, such as dropping it. It may cause unit damage and malfunction.
- Retain the original shipping carton and packing materials. For maximum protection when shipping, repack the unit as it was originally packed at the factory.
- Do not use volatile liquids, such as insecticide, near the unit. Do not leave rubber or plastic products in contact with the unit for prolonged periods of time. Doing so will leave marks on the finish.
- The top and rear panels of the unit may become warm after a long period of use. This is not a malfunction.
- When the unit is not in use, always remove the disc and turn off the power.
- If you do not use the unit for a long period, the unit may not function properly in the future. Turn on and use the unit occasionally.

Notes on locating the unit

- When you place this unit near a TV, radio, or VCR, the playback picture may become poor and the sound may be distorted. In this case, place the unit away from the TV, radio, or VCR.
- To avoid damage to this product, never place or store the TV/DVD in direct sunlight; hot, humid areas; or areas subject to excessive dust or vibration.
- Always place the TV/DVD on the floor or a sturdy, level stable surface that can support the weight of the unit. Use a sturdy tie between the TV/DVD's rear hooks and the rear wall, pillar, etc., or screw the TV to the stand using the TV's rear screw hole or a safety band (see illustration).

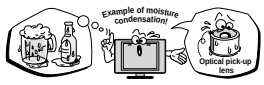


Note on cleaning
Clean only with a soft, dry, lint-free cloth.

Notes on moisture condensation

Moisture condensation damages the unit. Please read the following carefully.

Moisture condensation occurs, for example, when you pour a cold drink into a glass on a warm day and drops of water form on the outside of the glass. In the same way, moisture may condense on this unit's internal optical pick-up lens, one of the most crucial internal parts of the unit.

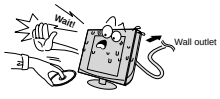


■ **Moisture condensation may occur in the following situations:**

- When you move the unit from a cold area to a warm area.
- When you use the unit in a room in which the heat was just turned on.
- When you use the unit in an area where cold air from an air conditioner directly hits the unit.
- When you use the unit in a humid area.

■ **Never use the unit when moisture condensation may occur.**

Using the unit when moisture condensation exists may damage discs and internal parts. Remove the disc, connect the power cord of the unit to the wall outlet, turn on the unit, and leave it for two or three hours. After two or three hours, the unit will have warmed up and evaporated any moisture. Keep the unit connected to the wall outlet and moisture condensation will seldom occur.

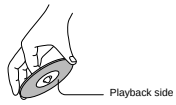


Notes on discs

On handling discs

- Do not touch the playback side of the disc.

DO



- Do not attach paper or tape to discs.

DO NOT

On cleaning discs

- Fingerprints and dust on the disc cause picture and sound deterioration. Wipe the disc from the center outward with a soft, lint-free cloth. Always keep the disc clean.

DO

DO NOT

- Never use any type of solvent such as thinner, benzine, commercially available cleaners, or antistatic spray made for use on vinyl LPs. Use of such liquids may damage the disc.

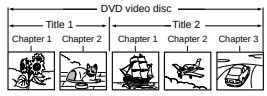
On storing discs

- Never store discs in a place subject to direct sunlight or near heat sources.
- Never store discs in places subject to moisture and dust such as a bathroom or near a humidifier.
- Always store discs vertically in a case. Stacking or placing objects on discs outside of their case may cause warping.

Structure of disc contents

Normally, DVD video discs are divided into titles, and the titles are sub-divided into chapters. Video CDs and Audio CDs are divided into tracks.

DVD video disc



Video CD/Audio CD

Each title, chapter or track is assigned a number, which is called "title number", "chapter number" or "track number" respectively.
Some discs may not have these numbers.

Notes on copyright

The unauthorized recording, use, distribution, or revision of television programs, video tapes, DVDs, and other materials is prohibited under the Copyright Laws of the United States and other countries, and may subject you to civil and criminal liability.

This product incorporates copyright protection technology that is protected by method claims of certain U.S. patents and other intellectual property rights owned by Macrovision Corporation and other rights owners. Use of this copyright protection technology must be authorised by Macrovision Corporation and is intended for home and other limited viewing uses only unless otherwise authorised by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

About this owner's manual

This owner's manual explains the basic instructions of this unit. Some DVD video discs are produced in a manner that allows specific or limited operation during playback. As such, the unit may not respond to all operating commands. This is not a defect in the unit. Refer to instruction notes of discs.

"✋" may appear on the TV screen during operation. A "✋" means that the operation is not permitted by the unit or the disc.
For example, sometimes it is unable to stop the playback of copyright message of the disc when the STOP (■) button is pressed. Alternatively, the "✋" may also indicate that the feature is not available for the disc.

Notes on region numbers

The region number of this unit is 1. If region numbers, which stand for their playable area, are printed on your DVD video disc and you do not find 🌐 or 🌐, disc playback will not be allowed by the player. (In this case, the unit will display a message on-screen.)
Some DVDs that have no region code label may still be subject to area restrictions and therefore are not playable.

On Video CDs

The DVD player contained in this LCD TV supports Video CDs equipped with the PBC (Version 2.0) function. (PBC is the abbreviation of Playback Control.) You can enjoy two playback variations depending on types of discs.

- **Video CD not equipped with PBC function (Version 1.1)**
  Sound and movie can be played on this DVD in the same way as an audio CD.
- **Video CD equipped with PBC function (Version 2.0)**
  In addition to operation of a Video CD not equipped with the PBC function, you can enjoy playback of interactive software with search function by using the menu displayed on the TV screen (Menu Playback). Some of the functions described in this owner's manual may not work with some discs.

Playable discs

This unit can play the following discs.

	Disc Mark	Contents	Disc Size	Maximum playback time
DVD video discs	DVD VIDEO / DVD VIDEO	Audio + Video (moving pictures)	12 cm	Approx. 4 hours (single sided disc)
				Approx. 8 hours (double sided disc)
			8 cm [with Disc adapter]	Approx. 80 minutes (single sided disc)
				Approx. 160 minutes (double sided disc)
Video CDs	compact disc DIGITAL VIDEO	Audio + Video (moving pictures)	12 cm	Approx. 74 minutes
			8 cm [with Disc adapter]	Approx. 20 minutes
Audio CDs	compact disc DIGITAL AUDIO	Audio	12 cm	Approx. 74 minutes
			8 cm (CD single) [with Disc adapter]	Approx. 20 minutes

The following discs are also available.
- DVD-R/RW discs of DVD video format
- CD-R/CD-RW discs of CD-DA, Video CD, MP3, WMA or JPEG format
- Kodak Picture CD and FUJICOLOR CD format

Some of these discs may be incompatible.

- You cannot play discs other than those listed above.
- You cannot play discs of DVD-RAM, DVD-ROM, Photo CD, etc., or non standardized discs even if they may be labeled as above.
- Some CD-R/RWs cannot be played back depending on the recording conditions.
- This unit uses the NTSC color system, and cannot play DVD video discs recorded in any other color system (PAL, SECAM, etc.).
- When you playback the 8 cm disc, you need an adapter (not supplied).

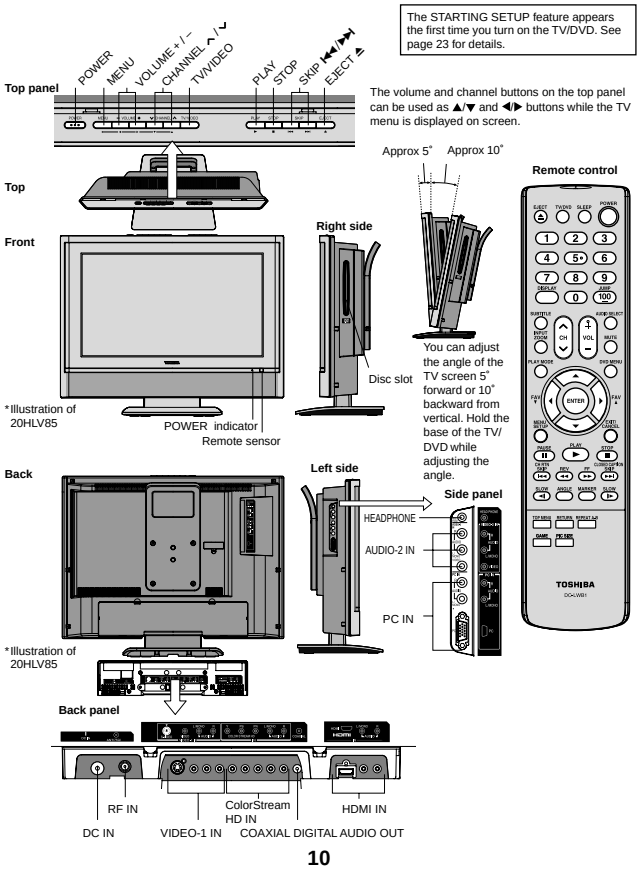
Because of problems and errors that can occur during the creation of DVD and CD software and/or the manufacture of DVD and CD discs, Toshiba cannot guarantee that the DVD player contained in this LCD TV will play every feature of every DVD bearing the DVD logo and/or every CD bearing the CD logo. As one of the creators of DVD technology, Toshiba DVD players are manufactured using the highest standards of quality, and as a result, such incompatibilities are rare. If you happen to experience any difficulty playing a DVD or a CD on the DVD player contained in this LCD TV, please feel free to contact us via the methods listed in the "How to Obtain Warranty Services" sections on pages 63 and 64 (as applicable).

Introduction **2**
FCC compliance information 3
IMPORTANT SAFEGUARDS 3
Precautions 6
Notes on discs 7
Exploring your new TV/DVD 10
Selecting a location for the TV/DVD 11
Connecting your TV/DVD **11**
Connecting a VCR 11
Connecting a cable converter box or Antenna 12
Connecting a satellite receiver and a VCR 13
Connecting a DVD player with ColorStream® (component video) and a VCR 14
Connecting a DTV receiver/set-top box with ColorStream® (component video) and a VCR 15
Connecting a camcorder 16
Connecting an HDMI™ or a DVI device to the HDMI input 17
Connecting an amplifier equipped with a Dolby® Digital decoder 18
Connecting an amplifier equipped with a DTS® decoder 18
Connecting an amplifier equipped with an MPEG audio decoder 19
Connecting an amplifier equipped with a digital audio input 19
Connecting a PC (Personal Computer) 20
Power source 20
Setting up your TV/DVD **21**
Using the remote control 21
Installing the remote control batteries 21
Learning about the remote control 22
Starting setup 23
Changing the on-screen display language 23
Adding channels to the TV/DVD's memory 24
Programming channels automatically 24
Adding and erasing channels manually 24
Changing channels 24
Game mode 24
Using the TV/DVD's features **25**
Adjusting the channel settings 25
Switching between two channels 25
Programming your favorite channels 25
Using the LOCKS menu 26
Selecting a password 26
Using the V-Chip (parental control) feature 27
Locking channels 28
Locking the video inputs 28
Setting the GameTimer™ 29
Using the panel lock feature 29
Labeling channels 30
Selecting the video input source 31
Labeling the video input sources 31
Setting the clock 31
Setting the ON timer 32
Viewing the wide-screen picture formats (480i and 480p signals only) 33
Selecting the cinema mode 34
Using the ASPECT feature 34
Setting the sleep timer 35
Using the closed caption feature 35
Adjusting the picture 36
Selecting the picture mode 36
Adjusting the picture quality 36
Using the CableClear® feature 37
Selecting the color temperature 37
Resetting your picture adjustments 37
Adjusting the sound 38
Muting the sound 38
Selecting stereo/SAP broadcasts 38
Adjusting the sound quality 38
Resetting your audio adjustments 39
Using the StableSound® feature 39
Using the WOW™ surround sound feature 39
Selecting the HDMI audio input source 40
Adjusting the back lighting feature 40
Displaying on-screen information 40
Auto power off 40
Understanding the Power Return feature 40
Picture/Audio adjustments in the PC mode 41
Resetting your picture/audio adjustments in the PC mode 41
DVD Playback **42**
Playing a disc 42
Playing in fast reverse or fast forward directions 44
Playing frame by frame 44
Playing in slow-motion 44
Locating a chapter or track 44
Zooming 45
Locating desired scene 45
Marking desired scenes 46
Marking the scenes 46
Retuning to the scenes 46
Repeat playback 47
A-B Repeat playback 47
Program playback 48
Random playback 48
Changing angles 49
Title selection 49
DVD menu 49
Changing soundtrack language 50
Subtitles 50
Karaoke playback 51
Disc status 51
To turn off the PBC 51
MP3/WMA/JPEG CD operation 52
MP3/WMA CD playback 53
JPEG CD playback 54
DVD function setup 55
Customizing the function settings 55
Temporary disabling of parental level by DVD disc 58
Appendix **59**
Language code list 59
Troubleshooting 60
Specifications 62
Limited United States Warranty 63
Limited Canada Warranty 64

Exploring your new TV/DVD

You can operate your TV/DVD by using the buttons on the top panel or the remote control. The side and back panels provide the inputs to connect other equipment to your TV/DVD.

The STARTING SETUP feature appears the first time you turn on the TV/DVD. See page 23 for details.



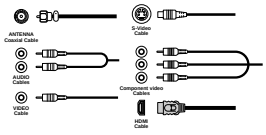
The volume and channel buttons on the top panel can be used as ▲/▼ and ◀/▶ buttons while the TV menu is displayed on screen.

Selecting a location for the TV/DVD

- Place the TV/DVD on the floor or on a sturdy platform in a location where light does not directly hit the screen.
- Place the TV/DVD far enough from the walls to allow proper ventilation. Inadequate ventilation may cause overheating, which may damage the TV/DVD.

Connecting your TV/DVD

- A coaxial cable is the standard cable that comes in from your antenna or cable converter box. Coaxial cables use "F" connectors.
- Standard A/V (audio/video) cables are usually color coded according to use: yellow for video and red and white for audio. The red audio cable is for the stereo right channel, and the white audio cable is for the stereo left (or mono) channel. If you look at the rear panel of the TV/DVD, you will see that the terminals are color coded in the same manner as the cables.
- S-video cables provide better picture performance than standard video cables. S-video cables can only be used with S-video compatible components.
- Component video cables provide better picture performance than S-video cables. Component video cables can only be used with component video compatible components.
- HDMI (High Definition Multimedia Interface) cable is for use with video equipment that has HDMI output (see page 17).

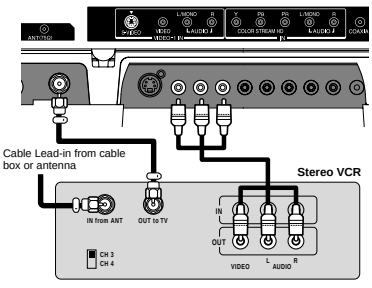


Note:
To prevent equipment damage, do not plug in any power cords until you have finished connecting all equipment.

Connecting a VCR

This connection allows you to watch local channels and video programs, play or record on the VCR while watching TV, and record from one channel while watching another channel.

You will need:
- two coaxial cables
- one set of standard A/V cables



Note:
If using a mono VCR, connect L/Mono to VCR Audio OUT using only one audio cable. For better picture quality, if your VCR has S-video, you can use an S-video cable instead of the standard video cable. Do not connect a standard video cable and an S-video cable to VIDEO-1 simultaneously.

The unauthorized recording, use, distribution or revision of television programs, videotapes, DVDs, and other materials is prohibited under the Copyright Laws of the United States and other countries, and may subject you to civil and criminal liability.

Connecting a cable converter box or Antenna

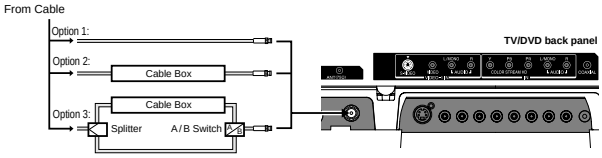
This television has an extended tuning range and can tune most cable channels without using a cable company supplied converter box. Some cable companies offer "premium pay channels" in which the signal is scrambled. Descrambling these signals for normal viewing requires the use of a descrambler device, which is generally provided by the cable company.

Option 1: For Subscribers to Basic Cable TV Service
For basic cable service not requiring a Converter/Descrambler box, connect the incoming 75 ohm Coaxial Cable directly to the Antenna Jack on the back of the television.

Option 2: For Subscribers to Scrambled Cable TV Service
If you subscribe to a cable service that requires the use of a Converter/ Descrambler box, connect the incoming cable to the Converter/ Descrambler box and connect the output of the box to the Antenna Jack on the back of the television. Follow the connections shown below. Set the television to the output of the Converter/Descrambler box (usually channel 3 or 4) and use the Converter/Descrambler box to select channels.

Option 3: For Subscribers to Unscrambled Basic Cable with Scrambled Premium Channels
If you subscribe to a cable service in which basic cable channels are unscrambled and premium channels require the use of a Converter/ Descrambler box, you may wish to use a two-set signal splitter (sometimes called a "two-set coupler") and an A/B Switch box from the cable installer or an electronics supply store. Follow the connections shown below. With the switch in the "B" position, you can directly tune any nonscrambled channels on your TV/DVD. With the switch in the "A" position, tune your TV/DVD to the output of the Converter/Descrambler box (usually channel 3 or 4) and use the box to tune scrambled channels.

Note:
When you use a converter box with your TV/ DVD, there may be features that you cannot program using the remote control, such as labeling channels, blocking channels, and programming your favorite channels.



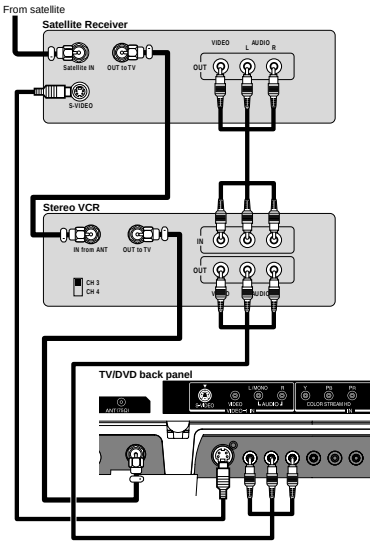
Connecting a satellite receiver and a VCR

This connection allows you to watch satellite, VCR, or TV programs. You can record from the satellite receiver and TV, as well as record one TV channel while watching another channel.

You will need:
- three coaxial cables
- two sets of standard A/V cables
- one S-video cable

Note:
You can use a standard video cable instead of the S-video cable, but the picture quality will decrease. If you use an S-video cable between the TV/DVD and DVD player/satellite receiver, make the audio connections but remove the standard video cable. Do not connect both an S-video and a standard video cable to VIDEO1 at the same time or the picture performance will be unacceptable.

The unauthorized recording, use, distribution or revision of television programs, videotapes, DVDs, and other materials is prohibited under the Copyright Laws of the United States and other countries, and may subject you to civil and criminal liability.



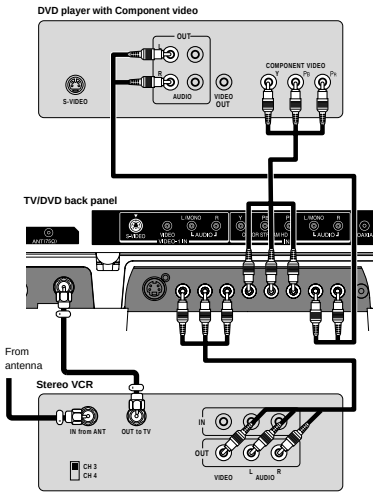
Connecting a DVD player with ColorStream® (component video) and a VCR

This connection allows you to watch DVD, VCR, or TV programs and record TV programs. You can record from one source while watching a program from another source. Your TV/DVD is capable of using ColorStream (component video). Connecting your TV/DVD to a component video compatible DVD player, such as a Toshiba DVD player with ColorStream®, can greatly enhance picture quality and performance.

You will need:
- two coaxial cables
- one set of standard A/V cables
- one set of component video cables
- one pair of standard audio cables

Note:
The ColorStream HD jacks can be used with Progressive (480p, 720p) and Interlaced (480i, 1080i) scan systems. A 1080i signal will provide the best picture performance.

The unauthorized recording, use, distribution or revision of television programs, videotapes, DVDs, and other materials is prohibited under the Copyright Laws of the United States and other countries, and may subject you to civil and criminal liability.



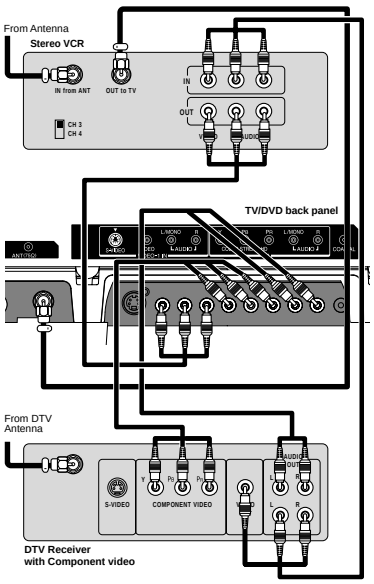
Connecting a DTV receiver/set-top box with ColorStream® (component video) and a VCR

This connection allows you to watch DTV (digital TV), VCR, and TV programs, and record DTV and TV programs.
Your TV/DVD has ColorStream® (component video) inputs. Connecting your TV/DVD to a DTV receiver with component video can greatly enhance picture quality and realism.

You will need:
- three coaxial cables
- two sets of standard A/V cables
- one set of standard audio cables
- one set of component video cables

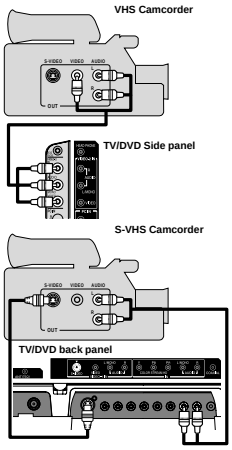
Note:
For HDMI connection, see page 17.
The ColorStream HD jacks and HDMI jacks can be used with Progressive (480p, 720p) and Interlaced (480i, 1080i) scan systems. If your DTV receiver does not have component video, use the S-video and standard audio connections instead. Do not connect both an S-video and a standard video cable to VIDEO1 at the same time or the picture performance will be unacceptable.

The unauthorized recording, use, distribution, or revision of television programs, videotapes, DVDs, and other materials is prohibited under the Copyright Laws of the United States and other countries, and may subject you to civil and criminal liability.



Connecting a camcorder

This connection allows you to watch videos recorded on a camcorder.



You will need:
- one set of standard AV cables

You will need:
- one S-video cable
- one pair of standard audio cables

Note:
For better picture quality, if your camcorder has S-video, you can use an S-video cable (plus the standard audio cables) instead of a standard video cable.
Do not connect both a standard video cable and an S-video cable at the same time, or the picture performance will be unacceptable.

Connecting an HDMI™ or a DVI device to the HDMI input

The HDMI[1] input on your TV/DVD receives digital audio and uncompressed digital video from an HDMI device or uncompressed digital video from a DVI[2] device.

This input is designed to accept HDCP[3] program material in digital form from EIA/CEA-861/861B–compliant[4] consumer electronic devices (such as a set-top box or DVD player with HDMI or DVI output).

The HDMI input is designed for best performance with high definition video signals. It will accept and display 480i, 480p, 720p and 1080i signals.

Note: The HDMI jack is not intended for connection to and should not be used with a personal computer. For PC connection, see page 20.

[1] *HDMI = High-Definition Multimedia Interface.*
[2] *DVI = Digital Video Interface.*
[3] *HDCP = High-bandwidth Digital Content Protection.*
[4] *EIA/CEA-861/861B compliance covers the transmission of uncompressed digital video with high-bandwidth digital content protection, which is being standardized for reception of high-definition video signals.*
Because this is an evolving technology, it is possible that some devices may not operate properly with the TV/DVD.

To ensure that the HDMI or DVI device is reset properly, it is recommended that you follow these procedures:
- *When turning on your electronic components, **turn on the TV/DVD first**, and then the HDMI or DVI device.*
- *When turning off your electronic components, **turn off the HDMI or DVI device first**,and then the TV/DVD.*

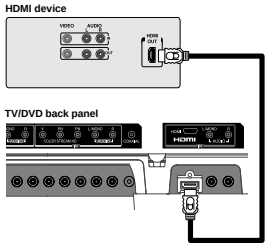
To connect an HDMI device, you will need:
- one HDMI cable (type A connector)

For proper operation, it is recommended that you use as short an HDMI cable as possible. You should not encounter difficulty if you use an HDMI cable that is shorter than 16.4 ft (5m).

HDMI cable transfers both video and audio. Separate analog audio cables are not required (see illustration below).

You must set the HDMI audio input setting to "HDMI" in the AUDIO menu (see page 40).

Some CDVs (Video CDs) may not output digital audio signals. In that case, you may hear sound by connecting analog audio cables. If you do use analog audio cables for this reason, you will need to set the HDMI audio input setting to "DVI" to hear the analog audio (see page 40).
***Note:** If you connect an HDMI device and analog audio cables and play media with digital audio output, to hear digital audio you must set the HDMI audio input setting to "HDMI" (page 40).*



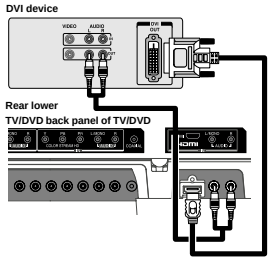
HDMI, the HDMI logo, and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing, LLC.

To connect a DVI device, you will need:
- one HDMI–to–DVI adapter cable (HDMI type A connector)

For proper operation, the length of an HDMI-to-DVI adapter cable should not exceed 9.8 ft (3m). The recommended length is 6.6 ft (2m).
- one pair of standard analog audio cables

An HDMI-to-DVI adapter cable transfers only video. Separate analog audio cables are required (see illustration below).

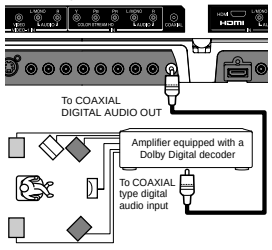
You must set the HDMI audio input setting to "DVI" in the AUDIO menu (see page 40).



Connecting an amplifier equipped with a Dolby® Digital decoder

Dolby Digital
Dolby Digital is the surround sound technology used in theaters showing the latest movies, and is now available to reproduce this realistic effect in the home. You can enjoy motion picture and live concert DVD video discs encoded via the Dolby Digital recording system with this dynamic realistic sound by connecting the TV/DVD to a 6 channel amplifier equipped with a Dolby Digital decoder or Dolby Digital processor. If you have a Dolby Surround Pro Logic decoder, you will obtain the full benefit of Pro Logic from the same DVD movies that provide full 5.1-channel Dolby Digital soundtracks, as well as from titles with the Dolby Surround mark.

TV/DVD back panel



You will need:
- one coaxial cables

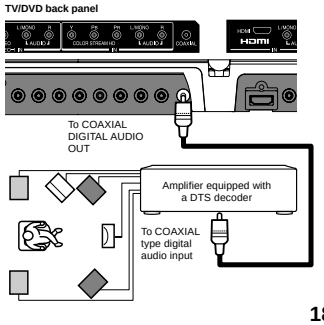
Notes:
- *DO NOT connect the COAXIAL DIGITAL AUDIO OUT jack of the TV/DVD to the AC-3 RF input of a Dolby Digital Receiver. This input on your A/V Receiver is reserved for Laserdisc use only and is incompatible with the COAXIAL DIGITAL AUDIO OUT jack of the TV/DVD.*
- *Connect the COAXIAL DIGITAL AUDIO OUT jack of the TV/DVD to the "COAXIAL" input of a Receiver or Processor.*
- *Refer to the owner's manual of the connected equipment as well.*
- *The output sound of the TV/DVD has a wide dynamic range. Be sure to adjust the receiver's volume to a moderate listening level. Otherwise, the speakers may be damaged by a sudden high volume sound.*
- *Turn off the amplifier before you connect or disconnect the TV/DVD's power cord. If you leave the amplifier power on, the speakers may be damaged.*

Manufactured under license from Dolby Laboratories. Dolby, Pro Logic, and the double-D symbol are trademarks of Dolby Laboratories.

Connecting an amplifier equipped with a DTS® decoder

Digital Theater Systems (DTS)
DTS is a high quality surround technology used in theaters and now available for home use, on DVD video discs or audio CDs.
If you have a DTS decoder or processor, you can obtain the full benefit of 5.1 channel DTS encoded sound tracks on DVD video discs or audio CDs.

TV/DVD back panel



You will need:
- one coaxial cable

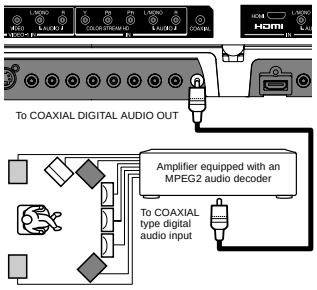
Notes:
- *Connect the COAXIAL DIGITAL AUDIO OUT jack of the TV/DVD to the "COAXIAL" input of a Receiver or Processor.*
- *Refer to the owner's manual of the connected equipment as well.*
- *The output sound of the TV/DVD has a wide dynamic range. Be sure to adjust the receiver's volume to a moderate listening level. Otherwise, the speakers may be damaged by a sudden high volume sound.*
- *Turn off the amplifier before you connect or disconnect the TV/DVD's power cord. If you leave the amplifier power on, the speakers may be damaged.*

DTS and DTS Digital Out are trademarks of Digital Theater Systems, Inc.

Connecting an amplifier equipped with an MPEG audio decoder

MPEG2 sound
You can enjoy motion picture and live concert DVD video discs encoded via the MPEG2 recording system with dynamic realistic sound by connecting an amplifier equipped with an MPEG2 audio decoder or MPEG2 audio processor.

TV/DVD back panel



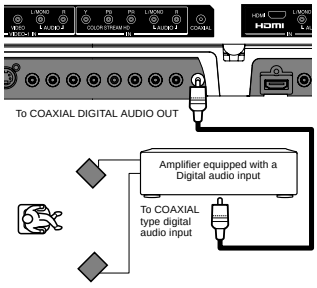
You will need:
- one coaxial cable

Notes:
- *Connect the COAXIAL DIGITAL AUDIO OUT jack of the TV/DVD to the "COAXIAL" input of a Receiver or Processor.*
- *Refer to the owner's manual of the connected equipment as well.*
- *The output sound of the TV/DVD has a wide dynamic range. Be sure to adjust the receiver's volume to a moderate listening level. Otherwise, the speakers may be damaged by a sudden high volume sound.*
- *Turn off the amplifier before you connect or disconnect the TV/DVD's power cord. If you leave the amplifier power on, the speakers may be damaged.*

Connecting an amplifier equipped with a digital audio input

2 channel digital stereo
You can enjoy the dynamic sound of 2 channel digital stereo by connecting an amplifier equipped with a digital audio input and speaker system (right and left front speakers).

TV/DVD back panel



You will need:
- one coaxial cable

Notes:
- *PCM audio is limited to DVD or CD playback.*
- *Connect the COAXIAL DIGITAL AUDIO OUT jack of the TV/DVD to the "COAXIAL" input of a Receiver or Processor.*
- *Refer to the owner's manual of the connected equipment as well.*
- *The output sound of the TV/DVD has a wide dynamic range. Be sure to adjust the receiver's volume to a moderate listening level. Otherwise, the speakers may be damaged by a sudden high volume sound.*
- *Turn off the amplifier before you connect or disconnect the TV/DVD's power cord. If you leave the amplifier power on, the speakers may be damaged.*

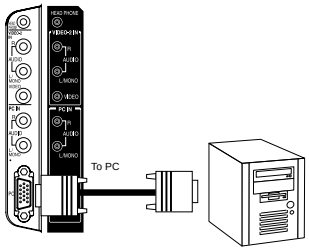
Connecting a PC (Personal Computer)

Before you connect this TV/DVD to your PC, change the adjustment of your PC's Resolution and Refresh rate. See "Monitor Display modes" at right.

Connect one end of a (male to male) VGA cable to the video card of the computer and the other end to the VGA connector PC at the side of the TV/DVD. Fix the connectors firmly with the screws on the plug. In case of a Multimedia computer, connect the audio cables to the audio outputs of your Multimedia computer and to the AUDIO L and R connectors of the PC IN jacks of the TV/DVD.

Set the video input source to PC mode (see "Selecting the video input source" on page 31 and "Picture/Audio adjustments in the PC mode" on page 41). The TV/DVD can be used as a computer monitor.

TV/DVD side panel



You will need:
- one VGA cable

Monitor Display modes

MODE	Resolution	Refresh rate
VGA	640x480	60Hz
SVGA	800x600	56.3Hz
SVGA	800x600	60.3Hz
XGA	1024x768	60Hz
WXGA	1280x720	60Hz
WXGA	1280x768	60Hz

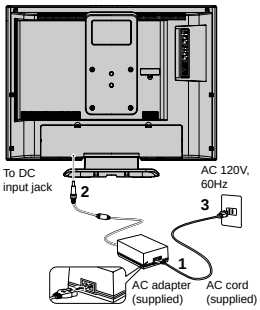
Notes:
- *The current signal source does not display when you return to TV mode.*
- *The on-screen displays will have a different appearance in PC mode than in TV mode.*
- *When you select WXGA mode, set the WXGA INPUT to ON in the PC PICTURE menu (see page 41.)*

Power source

Power connection

To use AC power

1. Connect the AC cord to the AC adapter.
2. Connect the AC adapter plug into the TV/DVD's DC input jack.
3. Connect the AC cord into a wall outlet.



Notes:
- *Make sure to insert the plug of each cord securely.*
- *During use the AC adapter becomes warm. This is not a malfunction.*

WARNING:
- *Do not connect this unit to the power using any device other than the supplied AC adapter or power cord. This could cause fire, electric shock, or damage.*
- *Do not use with a voltage other than the power voltage displayed. This could cause fire, electric shock, or damage.*
- *Never lift the AC adapter by holding the AC cord. The AC adapter may fall, causing personal injury or equipment damage.*

CAUTION:
- *Do not use the AC adapter if it is covered by a cloth etc., or pressed into a narrow area. This results in poor dissipation of heat and may cause fire, electric shock, or damage.*
- *When this unit is not used for a long time, (e.g., away on a trip) in the interest of safety, be sure to unplug it from the wall outlet.*
- *Do not plug/unplug the plug when your hands are wet. This may cause electric shock.*
- *If you need to replace the supplied AC adapter or AC cord, the specified AC adapter and AC cord must be used. Contact the dealer that you purchased the unit from.*

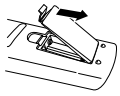
Setting up your TV/DVD

Using the remote control

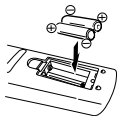
Installing the remote control batteries

To install the batteries:

1. Open the battery cover on the back of the remote control.



2. Install two "AAA" size batteries. Match the + and – signs on the batteries to the signs on the battery compartment.



3. Close the battery cover on the remote control until the lock snaps.

Note:
The TV/DVD remote control may not operate your VCR, DVD player, or cable TV converter. Refer to the owner's manual supplied with your other devices to see which features may be available. Additionally, the remote control for this TV/DVD may not support certain features available on the original remote controls for your other devices, in which case it is suggested that you use the original remote control for the applicable device.

Caution:
- *Never throw batteries into a fire.*

Notes:
- *Be sure to use AAA size batteries.*
- *Dispose of batteries in a designated disposal area.*
- *Batteries should always be disposed of with the environment in mind. Always dispose of batteries in accordance with applicable laws and regulations.*
- *If the remote control does not operate correctly, or if the operating range becomes reduced, replace batteries with new ones.*
- *When necessary to replace batteries in the remote control, always replace both batteries with new ones. Never mix battery types or use new and used batteries in combination.*
- *Always remove batteries from remote control if they are dead or if the remote control is not to be used for an extended period of time. This will prevent battery acid from leaking into the battery compartment.*

Learning about the remote control

POWER turns the TV/DVD on and off

EJECT eject a disc (page 43)

TV/DVD switches between TV/Video input/PC and DVD

CHANNEL NUMBERS allow direct access to channels

CHANNEL ∧ / ∨ cycles through programmed channels (page 24)

VOLUME + / – adjusts the volume level

ENTER sets programmed menu information (page 23)

EXIT/CANCEL exits programming menus or resets information in the menu (page 23)

INPUT selects the video input source (page 31)

PIC SIZE cycles through the three picture sizes: Natural, TheaterWide and full (page 33)

GAME game mode (page 24)

MENU/SETUP allows access to programming menus (page 23)

DISPLAY displays status information on-screen (page 40)

SLEEP programs the TV/DVD to turn off at a set time (page 35)

MUTE turns off the sound (page 38)

CLOSED CAPTION switch between TV/Caption/Text in Closed Caption mode (page 35)

SUBTITLE sets subtitle (page 50)

AUDIO SELECT switches the sound of TV/DVD and changes sound track languages (page 50)

DVD MENU allows access to DVD menu (page 49)

TOP MENU allows access to DVD Top menu (page 49)

PLAY MODE sets repeat playback (page 47)

RETURN removes DVD setup menu (page 55)

MARKER index of DVD (page 46)

REPEAT A-B repeats playback between A and B (page 47)

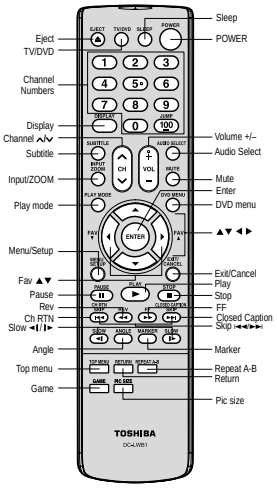
ANGLE changes playback angle (page 49)

JUMP locates the desired point to play back (page 45)

CH RTN returns to the last viewed channel (page 25),

ZOOM allows you to zoom in (page 45)

SKIP ⏮◀/▶⏭ skips DVD chapter (page 44)



FF fast forwards a DVD, VCD, CD Audio, forwards playback

PLAY plays a DVD, VCD, CD Audio

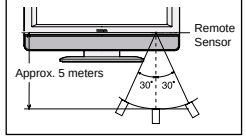
REV rewinds a DVD, VCD, CD Audio, reviews playback

STOP stops a DVD, VCD, CD Audio

PAUSE pauses a DVD, VCD, CD Audio

SLOW ◄I / I► plays forward/reverse slowmotion

- Aim the remote control at the remote sensor and press control buttons to operate.
- Operate the remote control within a 30 degree on either side of the remote sensor, up to a distance of approx. 16 ft. (5m).



Starting setup

The STARTING SETUP feature appears the first time you turn on the TV/DVD, and helps you select the menu language, specify the TV/CABLE setting, and program channels automatically.

IMPORTANT: Make sure that the antenna or cable TV system connection is made!

1. Press POWER to turn on the TV/DVD. The starting setup function begins and the language setup menu appears on the screen. Press ▲ or ▼ to select your desired language, then press ENTER.
2. Press ▲ or ▼ to select "TV" or "CABLE", then press ENTER.
3. Press ▲ or ▼ to select "START", then press ENTER. If you select "CANCEL" and press ENTER, the STARTING SETUP stops and changes to the TV screen.
4. Now the "AUTO SETUP" starts. After the starting setup is completed, the TV channel appears on the screen.
   - If you press the EXIT button in the process of "AUTO SETUP" the STARTING SETUP stops and changes to the TV screen.

After you have installed the batteries and programmed the remote control, you need to set some preferences on the TV/DVD using the menu system. You can access the menu system with the buttons on the remote control.

- When you make a menu selection, your changes occur immediately. You do not have to press MENU or EXIT to see your changes.
- After one minute, the menu screen will automatically close if you do not make a selection. Your changes will still be saved.
- When you have finished programming the menus, press EXIT.

Changing the on-screen display language

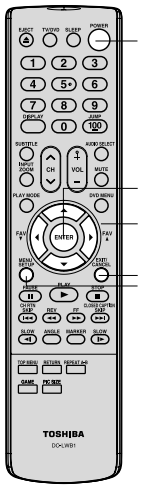
You can choose from three different languages (English, French and Spanish) for the on screen displays. Adjustment menus and messages will appear in the language of your choice.

To select a language:

1. Press MENU, then press ◀ or ▶ until the SETUP menu appears.

2. Press ▲ or ▼ to highlight LANGUAGE.

3. Press ◀ or ▶ to highlight your desired language.



Note:
The position and size of the on-screen menus change for some program formats (such as 1080i or 720p).

Adding channels to the TV/DVD's memory

When you press CH ∧ / ∨, your TV/DVD will stop only on the channels you have stored in the TV/DVD's channel memory. Follow the steps below to program channels into the channel memory.

Programming channels automatically

Your TV/DVD can automatically detect all active channels and store them in its memory. After the TV/DVD has stored the channels in its memory automatically, you can add or erase channels manually.

To add channels automatically:

1. Press MENU, then press ◀ or ▶ to display the SETUP menu.
2. Press ▲ or ▼ until the TV/CABLE selection is highlighted.
3. Press ◀ or ▶ to highlight either TV or CABLE, depending on which you use.
   If you use an antenna, choose TV.
   If you use cable, choose CABLE.
4. Press ▼ until the CH PROGRAM selection is highlighted.
5. Press ▶ to start channel programming. The TV/DVD will automatically cycle through all the TV or Cable channels (depending on which you selected), and store all active channels in the channel memory. While the TV/DVD is cycling through the channels, the message "PROGRAMMING NOW-PLEASE WAIT" appears.
6. When channel programming is complete, the message "COMPLETED" appears.
7. Press CH ∧ / ∨ to view the programmed channels.

Adding and erasing channels manually

After you have programmed the channels automatically, you can add or erase specific channels manually.

To add or erase channels manually:

1. Select the channel you want to add or erase. If adding channels, you must select the channel to add using the Channel Number buttons.
2. Press MENU, then press ◀ or ▶ to display the SETUP menu.
3. Press ▲ or ▼ to highlight ADD/ ERASE.
4. Press ◀ or ▶ to select ADD or ERASE, whichever function you want to perform.
5. Repeat steps 1-4 for other channels you want to add or erase.

Changing channels

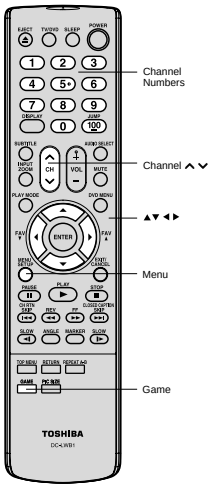
To change to the next programmed channel:
Press Channel ∧ / ∨ on the TV/DVD or CH ∧ / ∨ on the remote control.

To change to a specific channel (programmed or unprogrammed):
Press the Channel Number buttons (0-9 and 100) on the remote control. For example, to select channel 125, press 100, 2, 5.

Game mode

After connecting a TV Game to the unit, press GAME. The TV screen changes to the Game mode.

- The Game mode screen is adjusted to the suitable brightness for your eyes.
- If GAME is pressed during standby mode, the unit turns on automatically and the Game mode screen appears on the screen.



In addition to cycling through your programmed channels, the Channel ∧/∨ buttons will also cycle through the video input sources (page 31) in the order illustrated below.

ANT (programmed channel) ⟷ VIDEO1 ⟷ VIDEO2
↕ ↑
PC ⟷ HDMI ⟷ ColorStream HD ⟷ GAME

Using the TV/DVD's features

Adjusting the channel settings

Switching between two channels

You can switch between two channels without entering an actual channel number each time.

To switch between two channels:

1. Select the first channel you want to view.
2. Select a second channel using the Channel Number buttons (0-9, 100).
3. Press CH RTN. The previous channel will be displayed.

Each time you press CH RTN, the TV/DVD will switch back and forth between the two channels.

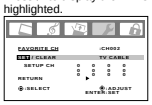
Programming your favorite channels

You can preset up to 12 of your favorite channels using the Favorite Channel Programming feature. Because this feature scans through only your favorite channels, it allows you to skip other channels you do not normally watch.
You can still use CH ∧ / ∨ to scan through all the channels you programmed in the TV's memory.

To program your favorite channels:

1. Select a channel you want to program.
2. Press MENU, then press ◀ or ▶ to display the OPTION menu.
3. Press ▲ or ▼ to highlight FAVORITE CH.

4. Press ▶ to display the FAVORITE CH menu. SET/CLEAR will be highlighted.

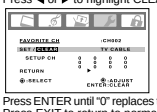


5. Press ◀ or ▶ to highlight SET and press ENTER.
6. Press EXIT to return to normal viewing.
7. Repeat steps 1-6 for up to 12 channel.

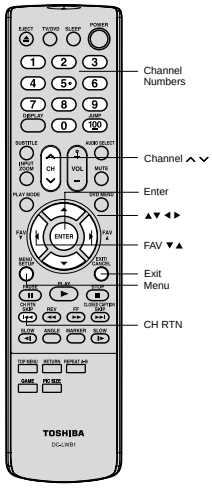
To select your favorite channels:
Press the FAV ▲ / ▼ buttons on the remote control to select your favorite channels.
The FAV ▲ / ▼ buttons will not work until you have programmed your favorite channels.

To clear your favorite channels:

1. Select a channel you want to clear.
2. Press MENU, then press ◀ or ▶ to display the OPTION menu.
3. Press ▲ or ▼ to highlight FAVORITE CH.
4. Press ▶ to display the FAVORITE CH menu. SET/CLEAR will be highlighted.
5. Press ◀ or ▶ to highlight CLEAR.



6. Press ENTER until "0" replaces the channel number you want to erase.
7. Press EXIT to return to normal viewing.
8. Repeat steps 1-7 for the other channels.



Using the LOCKS menu

Note : The V-Chip feature is available for the U.S. V-Chip system only. The Canadian V-Chip Feature system is not supported.
You can prevent others from viewing certain programs or channels by blocking them using the V-Chip feature.

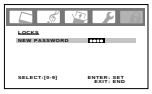
Selecting a password

Before you can use the V-Chip Feature to block programs and channels, you must select a password. The password you select prevents others from changing the rating limits you set.

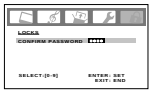
To select your password and access the LOCKS menu:

1. Press MENU, then press ◀ or ▶ to highlight the LOCKS menu.
2. Press ▲ or ▼ to display the password entering mode.

3. Use the Channel Number buttons (0-9) to enter your password. If you are accessing the LOCKS menu for the first time, select a four-digit number to be your password. Press ENTER.



4. Enter the password again to confirm it, and then press ENTER. The LOCKS menu appears.
   If the wrong password is entered, "ERROR" blinks about 4 seconds.

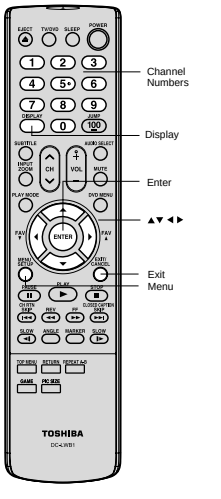


5. You may now set up the LOCKS menu. See "Using the V-Chip (parental control) feature" (page 27), "Locking channels" (page 28), "Locking the video inputs" (page 28), "Setting the GameTimer™" (page 29) or "Using the panel lock feature" (page 29).

To change your password:

1. Press MENU, then press ◀ or ▶ to display the LOCKS menu.
2. Press ▲ or ▼ to display the password entering mode.
3. Use the Channel Number buttons (0-9) to enter your password. Press ENTER. The LOCKS menu appears.
4. Press ▲ or ▼ to highlight NEW PASSWORD and press ▶ to display the NEW PASSWORD menu.
5. Use the Channel Number buttons (0-9) to enter a new code. Press ENTER.
6. Enter the password again to confirm it, and then press ENTER.
7. Press EXIT to return to normal viewing.

Note:
The password you programmed is also used in the LOCKS menu; see pages 27-29.



Note:
If you forget your password, press DISPLAY four times within five seconds while the TV/DVD is in password entering mode. This allows you to reset your password.

Using the V-Chip (parental control) feature

The Motion Picture Association of America (MPAA) uses a rating system to qualify motion picture content. Television broadcasters employ a rating system to qualify the content of television programs, as well. The TV and MOVIE ratings work with the V-Chip feature and allow you to block programs according to the rating limits you set.

To use the V-Chip to block programs by rating:

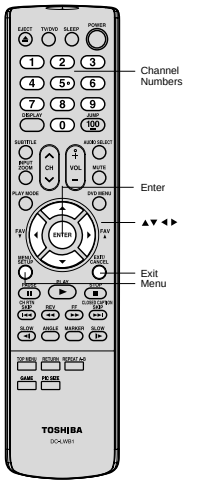
1. Press MENU, then press ◀ or ▶ to display the LOCKS menu.
2. Press ▲ or ▼ to display the password entering mode.
3. Use the Channel Number buttons (0-9) to enter your password. Press ENTER. The LOCKS menu appears.

4. Press ▲ or ▼ to highlight V-CHIP.
   - Press ◀ or ▶ to highlight ON to enable V-Chip program blocking by rating.
   - Press ◀ or ▶ to highlight OFF to disable V-Chip program blocking by rating.

5. Press ▲ or ▼ to highlight TV RATING. Then, press ◀ or ▶ to display the desired rating.
   OFF : TV RATING is not set
   TV-Y : All children
   TV-Y7 : 7 years old and above
   TV-G : General audience
   TV-PG : Parental guidance
   TV-14 : 14 years old and above
   TV-MA : 17 years old and above
   - When you select TV-Y7, TV-PG, TV-14 or TV-MA, press DISPLAY to explain the rating. Press ▲ or ▼ to select the desired rating you want. Press ◀ or ▶ to select the setting "ON" or "OFF", then press ENTER.
6. Press ▲ or ▼ to highlight MOVIE RATING. Then, press ◀ or ▶ to display the desired rating.
   OFF : MOVIE RATING is not set (no movies will be blocked)
   G : All ages
   PG : Parental guidance
   PG-13 : Parental guidance less than 13 years old
   R : Under 17 years old Parental guidance suggested
   NC17 : 17 years old and above
   X : Adult only

7. When you are done selecting the ratings, press EXIT to return to normal viewing.

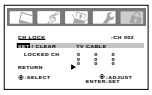
When you try to view a program with a ratings block, a message will appear listing the program's ratings. The program can still be viewed if you press MUTE and then enter your password to temporarily bypass the block.



Locking channels

With the CH LOCK feature, you can lock specific channels. You will not be able to tune locked channels unless you clear the setting. You can choose to lock up to nine TV channels and nine cable channels.

1. Use the Channel Number buttons (0-9 and 100) to display the television channel you wish to lock.
2. Press MENU, then press ◀ or ▶ to display the LOCKS menu.
3. Press ▲ or ▼ to display the password entering mode.
4. Use the Channel Number buttons (0-9) to enter your password, then press ENTER. The LOCKS menu appears.
5. Press ▲ or ▼ to highlight CH LOCK and press ▶ to display the CH LOCK menu.
6. Press ◀ or ▶ to select the following:
   - SET– to set the channel as one to be locked. Then press ENTER.
   - CLEAR– to clear all channels from the list of locked channels. Then press ENTER.
7. Repeat steps 1 through 6 to lock other channels. When you have finished locking channels, press EXIT to return to normal viewing.



If you try to tune a locked channel, the TV/DVD will not display it, but will display the nearest unlocked channel.

To unlock channels:

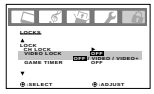
1. Press MENU, then press ◀ or ▶ to display the LOCKS menu.
2. Press ▲ or ▼ to display the password entering mode.
3. Use the Channel Number buttons (0-9) to enter your password, then press ENTER. The LOCKS menu appears.
4. Press ▲ or ▼ to highlight CH LOCK and press ▶ to display the CH LOCK menu.
5. Press ◀ or ▶ to highlight CLEAR and clear all channels from the list of locked channels. Press ENTER.
6. Press EXIT to return to normal viewing.

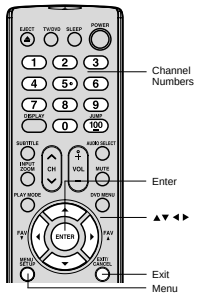
Locking the video inputs

With the VIDEO LOCK feature, you can lock out the input sources (VIDEO1, VIDEO2, COLORSTREAM HD, HDMI, PC, GAME) and channels 3 and 4. You will not be able to select the input sources with the INPUT button or Channel buttons unless you clear the setting.

To set up the video lock:

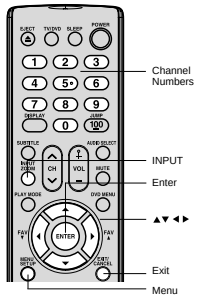
1. Press MENU, then press ◀ or ▶ to display the LOCKS menu.
2. Press ▲ or ▼ to display the password entering mode.
3. Use the Channel Number buttons (0-9) to enter your password, then press ENTER. The LOCKS menu appears.
4. Press ▲ or ▼ to highlight VIDEO LOCK.
5. Press ◀ or ▶ to select:
   - **OFF:** Unlocks all video input sources.
   - **VIDEO:** Locks VIDEO1, VIDEO2, COLORSTREAM HD, HDMI, PC, GAME.
   - **VIDEO +:** Locks VIDEO1, VIDEO2, COLORSTREAM HD, HDMI, PC, GAME, channel 3 and channel 4. This option should be used if you use the antenna terminal to play a video tape.
6. Press EXIT to return to normal viewing.





Note:

After programming CH LOCK, change channels before turning off the television.



Note:

After programming VIDEO LOCK, change channels or press the INPUT key before turning off the TV/DVD.

To unlock the video inputs:

1. Press MENU, then press ◀ or ▶ to display the LOCKS menu.
2. Press ▲ or ▼ to display the password entering mode.
3. Use the Channel Number buttons (0-9) to enter your password, then press ENTER. The LOCKS menu appears.
4. Press ▲ or ▼ to highlight VIDEO LOCK and press ◀ or ▶ to highlight OFF.
5. Press EXIT to return to normal viewing.

Setting the GameTimer™

With the GameTimer™ feature, you can automatically activate the VIDEO LOCK feature (VIDEO setting) to set a time limit for playing a video game (30, 60, 90 or 120 minutes).

To set up the GameTimer:

1. Press MENU, then press ◀ or ▶ to display the LOCKS menu.
2. Press ▲ or ▼ to display the password entering mode.
3. Use the Channel Number buttons (0-9) to enter your password, then press ENTER. The LOCKS menu appears.
4. Press ▲ or ▼ to highlight GAME TIMER.
5. Press ◀ or ▶ to select a time limit (30 minutes, 60 minutes, 90 minutes, 120 minutes or OFF).
6. Press EXIT to return to normal viewing. After the GameTimer is programmed, the display will appear briefly every ten minutes to remind you that the GameTimer is operating.
   When the programmed time is reached, the TV/DVD will change channels automatically and enter VIDEO LOCK mode.

Using the panel lock feature

You can lock the top panel buttons to prevent your settings from being changed accidentally (by children, for example). When the panel lock is in ON, all control buttons on the TV/DVD top panel (except POWER) do not operate.

To lock the panel:

1. Press MENU, then press ◀ or ▶ to display the LOCKS menu.
2. Press ▲ or ▼ to display the password entering mode.
3. Use the Channel Number buttons (0-9) to enter your password, then press ENTER. The LOCKS menu appears.
4. Press ▲ or ▼ to highlight PANEL LOCK and press ◀ or ▶ to highlight ON.
   If a button on the top panel is pressed, the message "NOT AVAILABLE" appears.

To unlock the panel:

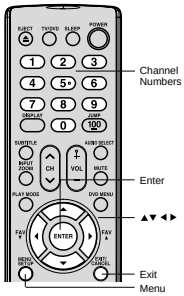
Press and hold the VOLUME – button on the TV/DVD top panel for about 10 seconds until the message "PANEL LOCK:OFF" appears on-screen.

You also can unlock the panel using the menus:

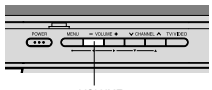
1. Press MENU, then press ◀ or ▶ to display the LOCKS menu.
2. Press ▲ or ▼ to display the password entering mode.
3. Use the Channel Number buttons (0-9) to enter your password, then press ENTER. The LOCKS menu appears.
4. Press ▲ or ▼ to highlight PANEL LOCK, and then press ◀ or ▶ to highlight OFF.

Notes:

- *Interactive video games that involve shooting a gun type of joy-stick at an on-screen target may not work on this TV/DVD.*
- *To deactivate the GameTimer, set the VIDEO LOCK to OFF (see "Locking the video inputs" page 28).*



TV/DVD top panel

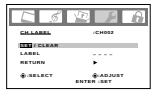


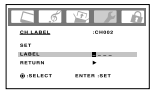
Labeling channels

Channel labels appear above the channel number display each time you turn on the TV/DVD, select a channel, or press the DISPLAY button. You can choose any four characters to identify a channel.

To create channel labels:

1. Select a channel you want to label.
2. Press MENU, then press ◀ or ▶ until the OPTION menu appears.
3. Press ▲ or ▼ to highlight CH LABEL.
4. Press ▶ to display the CH LABEL menu. SET/CLEAR will be highlighted.
5. Press ◀ or ▶ to highlight SET.
6. Press ENTER to highlight LABEL.
7. Press ◀ or ▶ to enter a character in the first space. Press the button repeatedly until the character you want appears on the screen. Press ENTER.
8. Repeat step 7 to enter the rest of the characters.
   If you would like a blank space in the label name, you must choose an empty space from the list of characters; otherwise, a dash will appear in that space.
9. Repeat steps 1-8 for other channels. You can assign a label to each channel.
10. Press EXIT to return to normal viewing.





Note:

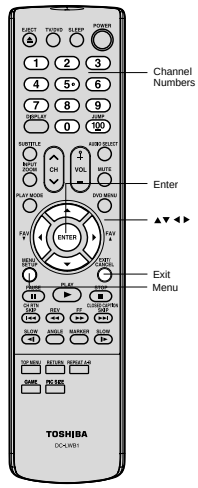
The character will change as below.

– ⟷ 0 ··· 9 ⟷ A ··· Z

⟷ SPACE ⟷ + ⟷ –

To erase channel labels:

1. Select a channel with a label.
2. Press MENU, then press ◀ or ▶ until the OPTION menu appears.
3. Press ▲ or ▼ to highlight CH LABEL.
4. Press ▶ to display the CH LABEL menu. SET/CLEAR will be highlighted.
5. Press ◀ or ▶ to highlight CLEAR.
6. Press ENTER.
7. Repeat steps 1-6 to erase other channel labels.



Selecting the video input source

Press INPUT to view a signal from another device connected to your TV/DVD, such as a VCR or DVD player. You can select ANT, VIDEO 1, VIDEO 2, ColorStream HD, HDMI or PC depending on which input jacks you used to connect your devices (see "Connecting your TV/DVD" on page 11).

Pressing INPUT on the remote control displays the current signal source (press INPUT again or 0-5 to change)

You also can use the Channel ∧ / ∨ buttons to select the video input source. In addition to cycling through your programmed channels (page 24), the Channel ∧ / ∨ buttons will also cycle through the video input sources, in the order illustrated below.

ANT (programmed channel) ⟷ VIDEO1 ⟷ VIDEO2
↕ PC ⟷ HDMI ⟷ ColorStream HD ⟷ GAME ↕

Labeling the video input sources

The video label feature allows you to label each input source for your TV/DVD from the following preset list of labels:

–	:	Uses the default label name
VCR	:	Video cassette recorder
DVD	:	DVD video
DTV	:	Digital TV set-top box
SAT	:	Satellite box
CBL	:	Cable box

To label the video input sources:

1. Press MENU, then press ◀ or ▶ to display the OPTION menu.
2. Press ▲ or ▼ to highlight VIDEO LABEL.
3. Press ▶ to display the VIDEO LABEL menu.
4. Press ▲ or ▼ to highlight the video source you want to label.
5. Press ◀ or ▶ to select the desired label for that input source.
6. Press EXIT to return to normal viewing.

Setting the clock

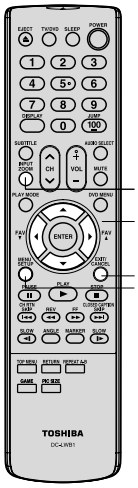
You must set the clock before you can program the ON timer.

To set the clock: (Example: 8:30 AM)

1. Press MENU, then press ◀ or ▶ to display the SETUP menu.
2. Press ▲ or ▼ to highlight CLOCK SET.
3. Press ▶ to highlight the hour position.
4. Press ▲ or ▼ to set the hour, then press ▶ to highlight the minute position.
5. Press ▲ or ▼ to set the minutes, then press EXIT to return to normal viewing.

Please note the following regarding the HDMI source selection:

The HDMI IN jack is not intended for connection to and should not be used with a PC (personal computer). See "Connecting an HDMI or a DVI device to the HDMI input" on page 17 and "Connecting a PC" on page 20 for details.



Note:

If the power source for the TV/DVD is interrupted (for example, the power cord is unplugged or a power failure occurs), you will need to reset the clock.

Setting the ON timer

This feature allows you to program the TV/DVD to turn on automatically at a set time. If you program the ON TIMER to "DAILY," the TV/DVD will turn on every day at the same time to the same channel until you clear the ON TIMER.

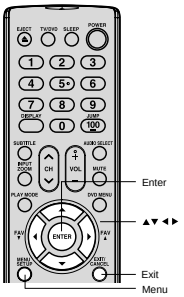
To set the on timer: (Example: Turning on the TV/DVD to channel 012 at 6:30 AM, DAILY)

1. Set the clock, if you have not already done so (see page 31).
2. Press MENU, then press ◀ or ▶ to display the OPTION menu.
3. Press ▲ or ▼ to highlight ON TIMER.
4. Press ◀ or ▶ to highlight SET, then press ENTER. The ON TIMER menu appears. Press ▶ to set the time.
5. Press ▲ or ▼ to set the desired hour, then press ▶.

6. Set the desired minutes and channel, as in step 5.

7. Press ▶ to select ONCE or DAILY.
8. Press EXIT to return to normal viewing.

To cancel the on timer:
Select CLEAR in step 7 above.
Press EXIT to return to normal viewing.



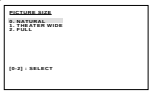
Note:
After a power failure or disconnection of the power, the timer settings will be lost.

Viewing the wide-screen picture formats (480i and 480p signals only)

You can view 480i and 480p format programs in a variety of picture sizes—Natural, TheaterWide, and Full.
The way the image displays in any of the picture sizes will vary depending on the format of the program you are viewing. Select the picture size that displays the current program the way that looks best to you.

Selecting the picture size

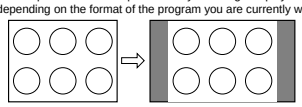
1. Press PIC SIZE on the remote control.
2. Press the corresponding number button (0-2) to select the desired picture size, as described below and on the next page.



Natural picture size

- The image is displayed close to its originally formatted proportion. Some program formats will display with side bars and/or bars at the top and bottom.

  Natural picture size example: The way the image displays will vary depending on the format of the program you are currently watching.

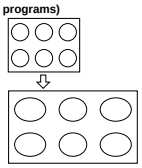


Conventional (4:3) picture on a conventional TV screen

Conventional (4:3) picture in Natural size on your wide-screen TV

TheaterWide picture size (for 4:3 format programs)

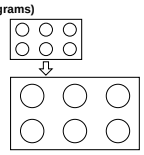
- The center of the picture remains close to its original proportion, but the left and right edges are stretched wider to fill the screen.
- The top and bottom edges of the picture may be hidden.



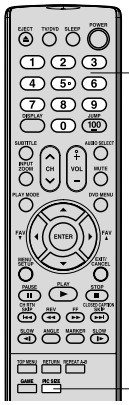
TheaterWide picture size example

Full picture size (for 16:9 source programs)

- If receiving a 4:3 format program, the picture is stretched wider to fill the width of the screen, but not stretched taller.
- None of the picture is hidden.



Full picture size example



Note:
You also can change the picture size by selecting PICTURE SIZE in the SETUP menu.

Notes:

- *The PICTURE SIZE feature is not available for some program formats (such as 1080i or 720p). Such formats will display in Full picture size.*
- *Using these functions to change the picture size (i.e., changing the height/ width ratio) for any purpose other than your private viewing may be prohibited under the Copyright Laws of the United States and other countries, and may subject you to civil and criminal liability.*

Selecting the cinema mode

When you view a DVD movie (3:2 pulldown processed) from a DVD player connected to the ColorStream (component video) inputs on the TV/DVD, smoother and more natural motion can be obtained by setting the CINEMA MODE to FILM.

To set the CINEMA MODE to FILM:

1. Press MENU, then press ◀ or ▶ until the SETUP menu appears.
2. Press ▲ or ▼ to highlight CINEMA MODE, then press ◀ or ▶ to select FILM.

To set the CINEMA MODE to VIDEO:
Press ◀ or ▶ to select VIDEO in step 2 above.

Using the ASPECT feature

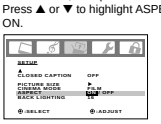
When the ASPECT feature is set to ON and the TV/DVD receives a 480i signal, the picture size is automatically selected (as described in the following table).

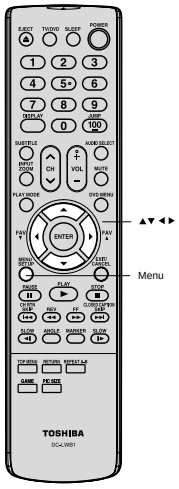
Aspect ratio of signal source	Automatic aspect size (automatically selected when ASPECT is ON)
4:3 Normal	Natural
16:9 Full	Full
4:3 Letter box	TheaterWide
Not defined	User-set mode

If the signal does not include aspect information, the picture size you selected on pages 33 is displayed.

To turn on the ASPECT feature:

1. Press MENU, then press ◀ or ▶ until the SETUP menu appears.
2. Press ▲ or ▼ to highlight ASPECT, then press ◀ or ▶ to select ON.





Setting the sleep timer

You can set the TV/DVD so it turns off automatically.

To set the sleep timer:
Repeatedly press SLEEP on the remote control to set the length of time until the TV/DVD turns off. The clock will increase 10 minutes for each press of the SLEEP button (0h00m, 0h10m, ...1h50m, 2h00m). After the sleep timer is programmed, the display will appear briefly every ten minutes to remind you that the sleep timer is operating.

To confirm the sleep timer setting:
Press SLEEP one time. The remaining time will be momentarily displayed.

To cancel the sleep timer:
Repeatedly press SLEEP until the display turns to 0h00m.

Using the closed caption feature

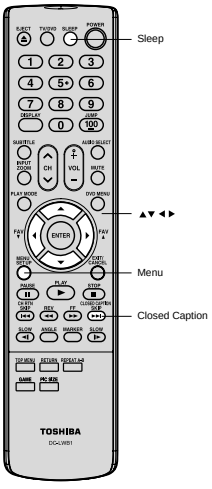
The Closed Caption feature has two options:

- Captions—An on-screen display of the dialogue, narration, and sound effects of programs and videos that are closed-captioned (usually identified in your local TV listing as "CC").
- Text—An on-screen display of information not related to the program, such as weather or stock data (if available in your viewing area).

To view captions or text:

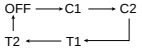
1. Tune the TV/DVD to the desired program.
2. Press MENU, then press ◀ or ▶ to display the SETUP menu.
3. Press ▲ or ▼ to highlight CLOSED CAPTION.

4. Press ◀ or ▶ to select the desired Closed Caption mode, as follows:
   - To view captions, select C1 or C2 (C1 displays translation of the primary language in your area).
     Note: If the program or video you selected is not closed-captioned, no captions will display on-screen.
   - To view text, select T1 or T2.
     Note: If text is not available in your viewing area, a black rectangle may appear on-screen. If this happens, set the Closed Caption feature to OFF.
   - To turn the Closed Caption feature off, highlight OFF in the Closed Caption menu.



Notes:

- A closed caption signal may not be decoded in the following situations:
  - *when a video tape has been dubbed*
  - *when the signal reception is weak*
  - *when the signal reception is non-standard*
- You also can use the CLOSED CAPTION button to view caption or text.



Adjusting the picture

Selecting the picture mode

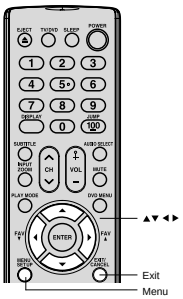
You can select four picture modes—Sports, Standard, Movie, and Memory—as described in the following table:

Mode	Picture Quality
SPORTS	Bright and dynamic picture (factory-set)
STANDARD	Standard picture quality (factory-set)
MOVIE	Movie-like picture setting (factory-set)
MEMORY	Your personal preferences (set by you; see "Adjusting the picture quality")

To select the picture mode:

1. Press MENU, then press ◀ or ▶ to display the PICTURE menu.
2. Press ▲ or ▼ to highlight MODE.

3. Press ◀ or ▶ to highlight the mode you prefer.
4. Press EXIT to return to normal viewing.



Adjusting the picture quality

You can adjust the picture quality to your personal preferences, including the brightness, contrast, color, tint, and sharpness. The qualities you choose will be stored automatically in your TV/DVD's memory so you can recall them at any time.

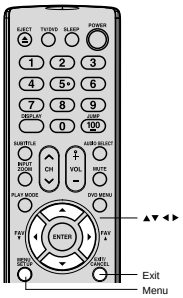
To adjust the picture quality:

1. Press MENU, then press ◀ or ▶ to display the PICTURE menu.
2. Press ▲ or ▼ until the item you want to adjust is highlighted.

3. Press ◀ or ▶ to adjust the level.

Selection	◀ Pressing ▶	
BRIGHTNESS	darker	lighter
CONTRAST	lower	higher
COLOR	paler	deeper
TINT	reddish	greenish
SHARPNESS	softer	sharper

4. Press EXIT to return to normal viewing.



Using the CableClear® feature

CableClear® reduces visible interference in your TV/DVD picture. This is useful when receiving a broadcast with a weak signal (especially a Cable channel) or playing a video cassette or disc damaged by repeated use.

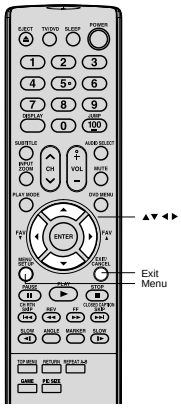
To turn on the CableClear® feature:

1. Press MENU, then press ◀ or ▶ to display the PICTURE menu.
2. Press ▲ or ▼ to highlight CableClear.

3. Press ◀ or ▶ to select ON.

To turn off the CableClear® feature:

Select OFF in step 3.



Selecting the color temperature

Change the picture quality by selecting from three preset color temperatures—cool, medium, and warm—as described in the following table:

Mode	Picture Quality
COOL	Blueish
MEDIUM	Neutral
WARM	Reddish

To select the color temperature:

1. Press MENU, then press ◀ or ▶ to display the PICTURE menu.
2. Press ▲ or ▼ to highlight COLOR TEMPERATURE.

3. Press ◀ or ▶ to highlight the mode you prefer.
4. Press EXIT to return to normal viewing.

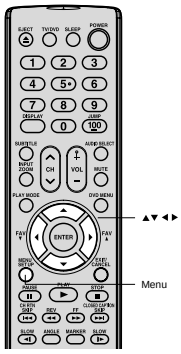
Resetting your picture adjustments

The RESET function returns your picture quality adjustments to the following factory settings:

Mode ..... sports
Brightness ..... center (25)
Contrast ..... max (50)
Color ..... center (25)
Tint ..... center (0)
Sharpness ..... center (25)
Color temperature .. cool

To reset your picture adjustments:

1. Press MENU, then press ◀ or ▶ to display the PICTURE menu.
2. Press ▲ or ▼ to highlight RESET, and then press ▶.



Adjusting the sound

Muting the sound

Press MUTE to temporarily turn off the sound. While the sound is off, the screen will display the word MUTE in the lower right-hand corner. To restore the sound, press MUTE again.

Selecting stereo/SAP broadcasts

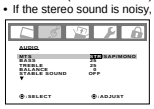
The multi-channel TV sound (MTS) feature provides high-fidelity stereo sound. MTS also can transmit a second audio program (SAP) containing a second language or other audio information.

Note: The MTS feature is not available in VIDEO mode.

When the TV/DVD receives a stereo or SAP broadcast, the word "STEREO" or "SAP" displays on-screen every time you turn the TV/DVD on, change the channel, or press DISPLAY.

To listen to stereo sound:

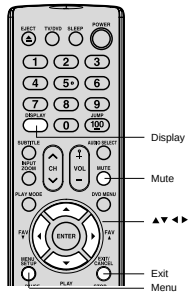
1. Press MENU, then press ◀ or ▶ to display the AUDIO menu.
2. Press ▲ or ▼ to highlight MTS.
3. Press ◀ or ▶ to highlight STR (stereo).
   Notes:
   - In general, you can leave your TV/DVD in stereo mode because the TV/DVD automatically outputs the type of sound being broadcast (stereo or mono).
   - If the stereo sound is noisy, select MONO to reduce the noise.



4. Press EXIT to return to normal viewing.

To listen to a second audio program (SAP):

1. Press MENU, then press ◀ or ▶ to display the AUDIO menu.
2. Press ▲ or ▼ to highlight MTS.
3. Press ◀ or ▶ to highlight SAP. The TV/DVD speakers will output the second audio program instead of normal audio.
4. Press EXIT to return to normal viewing.



Note:

A second audio program (SAP) can be heard only on those TV stations that offer it.

For example, a station might broadcast music as a second audio program. If you have SAP on, you will see the current program on the screen but hear music instead of the program's normal audio.

However, if you have SAP on, and the station you are watching is not currently broadcasting a second audio program, the station's normal audio will be output; however, occasionally there is no sound at all in SAP mode. If this happens, set the MTS feature to STEREO mode.

Adjusting the sound quality

You can change the sound quality of your TV/DVD by adjusting the bass, treble, and balance.

To adjust the sound quality:

1. Press MENU, then press ◀ or ▶ until the AUDIO menu appears.
2. Press ▲ or ▼ to highlight the item you want to adjust.

3. Press ◀ or ▶ to adjust the level.
   - ◀ makes the sound quality weaker or decreases the balance in the right channel, depending on the item selected.
   - ▶ makes the sound quality stronger or decreases the balance in the left channel, depending on the item selected.

Note:

Adjusting the sound quality (bass, treble and balance) does not affect the sound that is output from the headphone jack.

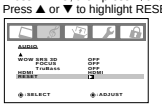
Resetting your audio adjustments

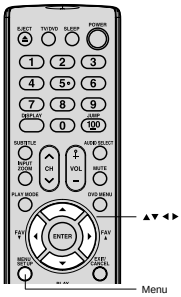
The RESET function returns the audio adjustments to the following factory settings:

Bass ..... center (25)
Treble ..... center (25)
Balance ..... center (0)

To reset your audio adjustments:

1. Press MENU, then press ◀ or ▶ to display the AUDIO menu.
2. Press ▲ or ▼ to highlight RESET, and then press ▶.





Using the StableSound® feature

The StableSound feature limits the highest volume level to prevent extreme changes in volume when the signal source is changed.

To turn on the StableSound® feature:

1. Press MENU, then press ◀ or ▶ to display the AUDIO menu.
2. Press ▲ or ▼ to highlight STABLE SOUND.
3. Press ◀ or ▶ to highlight ON.

To turn off the StableSound® feature:

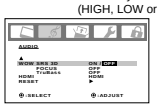
Highlight OFF in step 3 above.

Using the WOW™ surround sound feature

WOW is a special combination of SRS Labs audio technologies that creates a thrilling surround sound experience with deep, rich bass from stereo sound sources. Your TV/DVD's audio will sound fuller, richer, and wider. WOW consists of three features; SRS 3D, FOCUS, and TruBass.

To adjust the WOW feature:

1. Select STEREO mode (see "selecting stereo/SAP broadcasts" on page 38).
2. Press MENU, then press ◀ or ▶ to display the AUDIO menu.
3. Press ▼ or ▲ to highlight the desired WOW feature you want to adjust.
   - SRS 3D — To turn on or off the surround sound effect.
   - FOCUS — To turn on or off the vocal emphasis effect.
   - TruBass — To select your desired bass expansion level (HIGH, LOW or OFF).

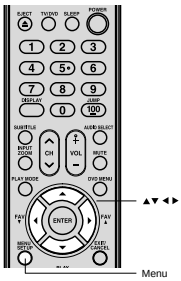


4. Press ◀ or ▶ to adjust the item.

WOW, SRS and (●) symbol are trademarks of SRS Labs, Inc.
WOW technology is incorporated under license from SRS Labs, Inc.

Notes:

- *If the broadcast is monaural, the SRS 3D effect will not work.*
- *The headphone jack do not output any of the WOW audio features.*



Selecting the HDMI audio input source

See page 17 for details on connecting an HDMI or a DVI device to the TV/DVD's HDMI input. If you connect a DVI device, to hear audio you must also connect the analog audio cables to the HDMI audio IN jacks (see page 17). Set the HDMI audio input setting to "DVI" with this connection. If you connect an HDMI device and play media with digital audio output, to hear digital audio set the HDMI audio input setting to "HDMI" with this connection. If you connect an HDMI device but play media with analog audio output (for example, certain CDVs do not output digital audio), to hear audio you must also connect the analog audio cables to the HDMI audio IN jacks (see page 17). Set the HDMI audio input setting to "DVI" with this connection.

To select the HDMI audio input source:

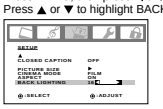
1. Press MENU, then press ◀ or ▶ to display the AUDIO menu.
2. Press ▼ or ▲ to highlight HDMI.
3. Press ◀ or ▶ to select HDMI or DVI.

Adjusting the back lighting feature

If your TV/DVD is in a bright room, the screen image may be difficult to see. You can use the BACK LIGHTING feature to adjust the screen brightness for improved picture clarity.

To adjust the back lighting:

1. Press MENU, then press ◀ or ▶ until the SETUP menu appears.
2. Press ▲ or ▼ to highlight BACK LIGHTING.



3. Press a ◀ or ▶ to adjust the screen brightness.

Displaying on-screen information

Press DISPLAY to display the following on-screen information:

- Clock
- Channel number or Video input mode selected
- Channel label (if preset)
- Stereo or SAP (second audio program) audio status
- Content rating
- On timer, Sleep timer (if preset)
- Picture size

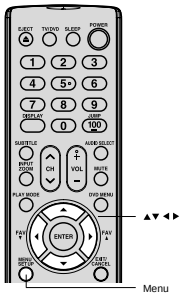
Auto power off

The TV/DVD will automatically turn off after approximately 15 minutes if it is tuned to a vacant channel or a station that completes its broadcast for the day and stops broadcasting on that channel. This feature does not work in Video input/PC/DVD mode.

Understanding the Power Return feature

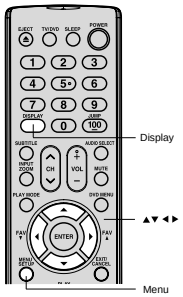
If the power is cut off while you are viewing the TV/DVD and the power is resupplied, the Power Return feature will turn the TV/DVD on automatically.

If the power is going to be off for a long time or you are going to be away from home for a long time, unplug the power cord from the wall outlet to prevent the TV/DVD from turning on in your absence.



Note:

The cold cathode fluorescent lamp used for the back light on this TV/DVD has a limited life. When areas on the screen darken, flicker, or no longer light up, the lamp may be at the end of its life. Contact your nearest Toshiba Authorized Service Station.



Picture/Audio adjustments in the PC mode

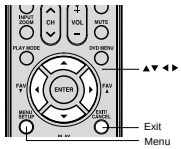
There are a number of picture settings you can adjust to optimize the performance of the unit in PC mode.

PICTURE Menu

AUDIO Menu

Example: Adjust the contrast.

1. During PC mode, press MENU, then press ◀ or ▶ to display the PICTURE menu.
2. Press ▲ or ▼ to select CONTRAST.
3. Press ◀ or ▶ to adjust CONTRAST.
4. Press EXIT to return to normal viewing.



Notes:

- *If you wish to change the on-screen language, follow the steps 1-3 on page 23.*
- *If no buttons are pressed for more than approx. 60 seconds, the PC Monitor Menu screen will return to normal Monitor screen automatically.*
- *The PC Monitor Menu settings are not effective for normal TV mode, DVD mode or external input mode.*

DESCRIPTION ABOUT EACH SETTING OPTION

PICTURE menu

BRIGHTNESS:	To adjust the brightness of PC Monitor screen.
CONTRAST:	To adjust the contrast of PC Monitor screen.
HOR POSITION:	To adjust the horizontal position of the image on the PC Monitor screen. Each video standard will require a different value for this setting.
VER POSITION:	To adjust the vertical position of the image on the PC Monitor screen. Each video standard will require a different value for this setting.
PHASE:	This must be adjusted after the frequency has been set to optimize picture quality.
CLOCK:	To minimize any vertical bars or stripes visible on the screen background.
RED/GREEN/BLUE:	To adjust the color temperature of the PC Monitor screen.
WXGA INPUT:	Set to ON, when you select the WXGA mode on the PC.

AUDIO menu

BASS/TREBLE/BALANCE:	To adjust the sound quality of PC mode.
STABLE SOUND:	To turn on or off the StableSound® feature in PC mode.
WOW SRS 3D:	To turn on or off the surround effect in PC mode.
WOW FOCUS:	To turn on or off the vocal emphasis effect in PC mode.
WOW TruBass:	To select your desired bass expansion level (HIGH, LOW or OFF) in PC mode.

Resetting your picture/audio adjustments in the PC mode

The RESET function returns your picture quality adjustments to the following factory settings:

PICTURE menu	AUDIO menu
Brightness ..... center (25)	Bass ..... center (25)
Contrast ..... max (50)	Treble ..... center (25)
Red ..... center (25)	Balance ..... center (0)
Green ..... center (25)	
Blue ..... center (25)	

To reset your picture adjustments:

1. Press MENU during PC mode.
2. Press ◄ or ► to select the desired menu.
3. Press ▲ or ▼ to highlight RESET, and then press ▶.

DVD Playback

Playing a disc

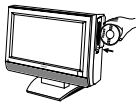
This section shows you the basics on how to play a disc.

Basic playback (DVD) (VCD) (CD)

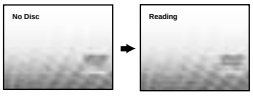
Preparations: When connecting to other equipment, turn the power off.

1. Press POWER on the unit or on the remote control to turn on the unit.
   The Power indicator will light.
   - Every time you press POWER, the TV/DVD starts from TV mode.
   - When using an amplifier, switch on the amplifier.
2. Press TV/DVD on the remote control to select DVD mode.
   The DVD startup screen will appear on the screen. (If DVD disc has already loaded, playback will start automatically.)

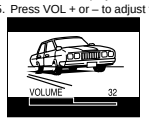
3. Load the disc in the disc slot with the label side facing forward. (If the disc has a label.) Hold the disc without touching either of its surfaces, align it with the guides, and place it in position.



   Note:
   When you playback the 8cm disc, you need an adapter (not supplied).
4. On the TV screen, "No Disc" changes to "Reading" and then playback commences.



   - A menu screen will appear on the TV screen, if the disc has a menu feature.
     Press ▲/▼ or ◀/▶ to select title, then press ENTER. Title is selected and play commences.
5. Press VOL + or – to adjust the volume.

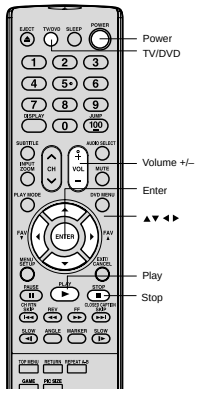


6. Press STOP to end playback.

Resume feature

- Depending on the disc you are playing, when you press STOP one time, the TV/DVD remembers the scene that was playing ("▶" appears on screen). Press PLAY to resume playback from the stopped scene.
- If you press STOP again or eject the disc, the unit will clear the stopped scene ("■" appears on screen).

CAUTION
Keep your fingers well clear of the disc slot when disc is loading or unloading. Neglecting to do so may cause serious personal injury.



Note:

Static electricity may affect the DVD player's operation and cause it to not work properly. If this happens, turn OFF the POWER, disconnect and then reconnect the AC power cord, and turn ON the unit again.

About (DVD) (VCD) (CD)

The (DVD) (VCD) (CD) icons on the heading bar show the playable discs for the function described under that heading.

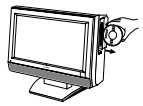
(DVD) : You can use this function with DVD video discs.
(VCD) : You can use this function with Video CDs.
(CD) : You can use this function with Audio CDs and CD-R/RW discs.

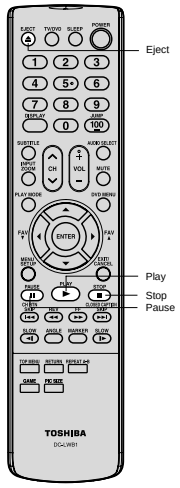
To start playback in the stop mode
Press PLAY.

To pause playback (still mode)
Press PAUSE during playback.
To resume normal playback, press PLAY.
- The sound is muted during still mode.

To stop playback
Press STOP.

To remove the disc
Press EJECT.
Remove the disc after the disc comes out.





Notes:

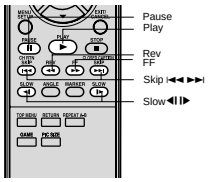
- *If a non-compatible disc is loaded, "Incorrect Disc", "Region Code Error" or "Parental Error" will appear on the TV screen according to the type of loaded disc. In this case, check your disc again (see pages 8 and 57).*
- *Some discs may take a minute or so to start playback.*
- *If you insert a single-sided disc the wrong way, "Reading" will appear on the display for about 1 minute and then "Incorrect Disc" will continue to be displayed.*
- *Some discs may not resume playing the same scene after stopping.*
- *Resuming cannot function when you play a PBC-featured Video CD while the PBC is on. To turn off the PBC, see page 51.*
- *Some playback operations of DVDs may be intentionally fixed by software producers. Since this unit plays DVDs according to the disc contents the software producers designed, some playback features may not be available. Also refer to the instructions supplied with the DVDs.*
- *Do not move the unit during playback. Doing so may damage the disc.*
- *Use EJECT on the unit to unload and eject the disc. Do not push the disc while it is moving. Doing so may cause the unit to malfunction.*
- *Do not put any objects other than discs in the disc slot. Doing so may cause the unit to malfunction.*
- *When you press a button, there may be a slight delay before the function activates.*

Playing in fast reverse or fast forward directions

DVD VCD CD

Press REV or FF during playback.
REV: Fast reverse playback
FF: Fast forward playback
Each time you press REV or FF, the playback speed changes.

To resume normal playback
Press PLAY.



Notes:
- *The TV/DVD mutes sound and subtitles during reverse and forward scan of DVD video discs. However, the TV/DVD plays sound during fast forward or fast reverse play of audio CDs.*
- *The playback speed may differ depending on the disc.*

Playing frame by frame DVD VCD

Press PAUSE during still playback.
Each time you press PAUSE, the picture advances one frame.

To resume normal playback
Press PLAY.

Note:
The sound is muted during frame by frame playback.

Playing in slow-motion DVD VCD

Press SLOW ◄II (REVERSE) or II► (FORWARD) during playback.
Each time you press the button, the slow-motion speed changes.

To resume normal playback
Press PLAY.

Notes:
- *The sound is muted during slow-motion playback.*
- *The Video CD cannot play Reverse Slow.*

Locating a chapter or track DVD VCD CD

Press SKIP I◄◄ or ►►I repeatedly to display the chapter or track number you want.
Playback starts from the selected chapter or track.

SKIP ►►I: To locate succeeding chapters or tracks.

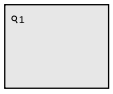
SKIP I◄◄: Playback starts from the beginning of the current chapter or track. When you press twice in quick succession, playback starts from the beginning of the preceding chapter or track.

Note:
A "Prohibition" symbol may appear at the upper left of the screen. This symbol means either the feature you tried is not available on the disc, or the TV/DVD cannot access the feature at this time. This does not indicate a problem with the TV/DVD.

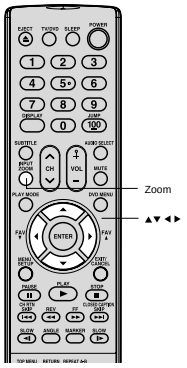
Zooming DVD VCD

This unit will allow you to zoom in on the frame image. You can then make selections by switching the position of the frame.

1. Press ZOOM during playback.
   The center part of the image will be zoomed in. Each press of ZOOM will change the ZOOM Q1 (x 1.3), Q2 (x 1.5) and Q3 (x 2.0).



2. Press ▲/▼/◄/► to view a different part of the frame.
   You may move the frame from the center position to UP, DOWN, LEFT or RIGHT direction.
3. In the zoom mode press ZOOM repeatedly to return to a 1:1 view (Q Off).

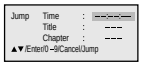


Notes:
- *You can select the Pause, Slow or Search playback in the zoom mode.*
- *Some discs may not respond to zoom feature.*

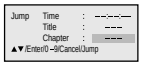
Locating desired scene DVD VCD CD

Use the title, chapter and time recorded on the disc to locate the desired point to play back.
To check the title, chapter and time, press DISPLAY.

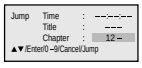
1. Press JUMP during playback or stop mode.



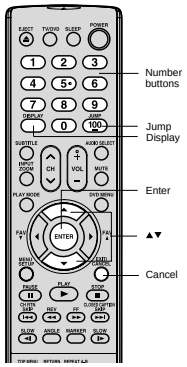
2. Press ▲ or ▼ to select the "Time", "Title" or "Chapter".



3. Press Number buttons (0–9) to change the number.
   - If you input a wrong number, press CANCEL.
   - Refer to the package supplied with the disc to check the numbers.



4. Press ENTER. Playback starts.
   - When you change the title, playback starts from Chapter 1 of the selected title.
   - Some discs may not work in the above operation.



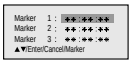
Note:
In case of the Video-CD playback with PBC, the JUMP does not work. To turn off PBC, see page 51.

Marking desired scenes DVD VCD

The unit stores the points that you want to watch again up to 3 points. You can resume playback from each scene.

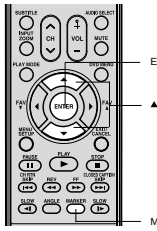
Marking the scenes

1. Press MARKER during playback.



2. Select the blank Marker using ▲ or ▼. Then press ENTER at the desired scene.
   - Repeat this procedure to set the other 2 scenes.

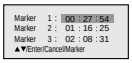
3. Press MARKER to remove this display.



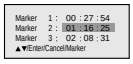
Notes:
- *Some discs may not work with the marking operation.*
- *The marking is canceled when you eject the disc or turn the power off.*
- *Some subtitles recorded around the marker may fail to appear.*

Returning to the scenes

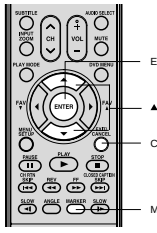
1. Press MARKER during playback or stop mode.



2. Press ▲ or ▼ to select the Marker 1-3.



3. Press ENTER.
   Playback starts from the marked scene.



■ **To cancel the Marker**
Follow the above steps 1~2, then press CANCEL.

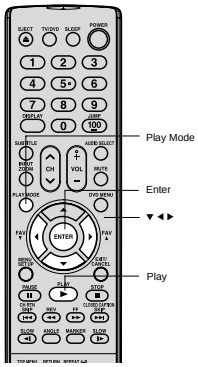
Repeat playback DVD VCD CD

1. Press PLAY MODE during playback or stop mode.
2. [DVD]
   Press ◄/► or ENTER once or twice to select "Chapter" or "Title".
   The unit automatically starts repeat playback after finishing the current title or chapter.

   [Audio CD, Video CD]
   Press ▼ to select "Repeat".
   Press ◄/► or ENTER once or twice to select "Track" or "All".
   The unit automatically starts repeat playback after finishing the current track.
   - If you set the repeat mode during stop mode, press PLAY to start Repeat playback.

3. Press PLAY MODE again to make the screen disappear.

To resume normal playback
Select Repeat : "Off" in step 2.



Notes:
- *Some discs may not work with the repeat operation.*
- *In case of Video CD with PBC, repeat functions are prohibited during playback.*

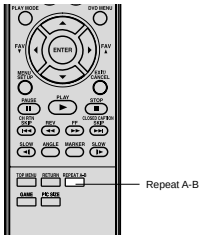
A-B Repeat playback DVD VCD CD

A-B repeat playback allows you to repeat material between two selected points.

1. Press REPEAT A-B during playback.
   The start point is selected.

2. Press REPEAT A-B again.
   The end point is selected. Playback starts at the point that you selected. Playback stops at the end point, returns to Point A automatically, then starts again.

To resume normal playback
Press REPEAT A-B again.
"Off" appears on the screen.

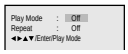


Notes:
- *In A-B Repeat mode, subtitles near the A or B locations may not be displayed.*
- *You cannot set the A-B Repeat for the scenes that include multiple angles.*
- *A-B Repeat playback does not work when Repeat playback is activated.*
- *You may not be able to set A-B Repeat, during certain scenes of the DVD.*
- *A-B Repeat does not work with an interactive DVD, MP3/WMA/JPEG CD.*
- *A-B Repeat is prohibited when PBC is on.*

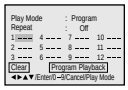
Program playback (VCD) (CD)

You can arrange the playback order of tracks or files on the disc.

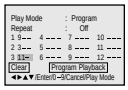
1. Press PLAY MODE in the stop mode.



2. Press ▲ or ▼ to select Play Mode, then press ◄/► or ENTER to select "Program".



3. Press ▲/▼/◄/► to select the programming position. Use Number buttons (0–9) to input the Track or file numbers.
   - To program others, repeat step 3.
   - If you input a wrong number, press CANCEL.



4. Press ▲/▼/◄/► to select "Program Playback" and press ENTER. The programs you selected will start to playback in the order.
   - In case of JPEG file, press SKIP ►►I to continue the program playback.
   - To resume normal playback, select Play Mode: "Off" in step 2.

To change the program

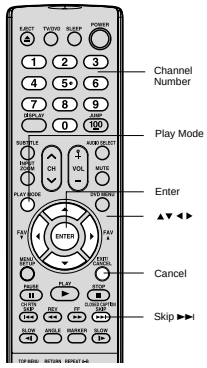
1. In the program mode, press ▲/▼/◄/► to select the track number.
2. Press Number buttons (0–9) to select the track number to be replaced.

To clear the program one by one

In the program mode, press ▲/▼/◄/► to select the track number. Then press CANCEL.

To clear all the programs

In the program mode, press ▲/▼/◄/► to select "Clear". Then press ENTER.

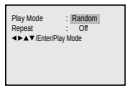


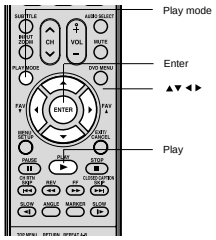
Note:
The program is cancelled when you eject the disc or turn the power off.

Random playback (VCD) (CD)

The unit selects tracks or files at random and playback.

1. Press PLAY MODE during playback or stop mode.
2. Press ▲/▼ to select Play Mode, then press ◄/► or ENTER to select "Random".
3. Press PLAY.
   The Random Playback will start.
   - If you set "Random" during playback mode, Random playback will begin after the track that is currently being played has ended.
   - To resume normal playback, select Play Mode: "Off" in step 2.





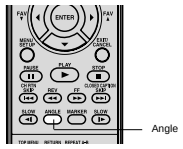
Note:
In playing back the Video CD with PBC, you cannot set Random playback.

Changing angles (DVD)

When playing back a disc recorded with multi-angle facility, you can change the angle that you are viewing the scene from.

1. Press ANGLE during playback.
   The current angle will appear.

2. Press ANGLE repeatedly until the desired angle is selected.

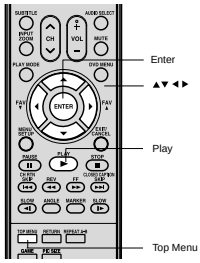


Note:
Depending on the DVD, you may not be able to change the angles even if multi-angles are recorded on the DVD.

Title selection (DVD)

Two or more titles are recorded on some discs. If the title menu is recorded on the disc, you can select the desired title.

1. Press TOP MENU during playback.
   Title menu appears on the screen.
2. Press ▲/▼/◄/► to select the desired title.
3. Press ENTER or PLAY.
   The playback of the selected title will start.

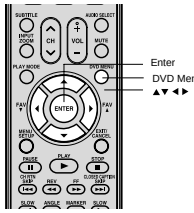


Note:
Depending on the DVD, you may not be able to select the title. Depending on the DVD, a "title menu" may simply be called a "menu" or "title" in the instructions supplied with the disc.

DVD menu (DVD)

Some DVDs allow you to select the disc contents using the menu. When you playback these DVDs, you can select the subtitle language and sound-track language, etc. using the menu.

1. Press DVD MENU during playback.
   The DVD menu appears on the screen.
   - Press DVD MENU again to resume playback at the scene when you pressed DVD MENU.
2. Press ▲/▼/◄/► to select the desired item.
3. Press ENTER.
   The menu continues to another screen. Repeat steps 2 and 3 to set the item completely.

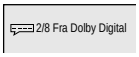


Note:
Depending on the DVD, you may not be able to resume playback from the scene point when you pressed DVD MENU.

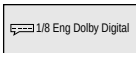
Changing soundtrack language (DVD) (VCD)

You can select the language when you play a multilingual disc.

1. Press AUDIO SELECT during playback.
   The current soundtrack language will appear.

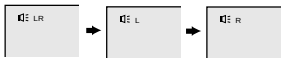


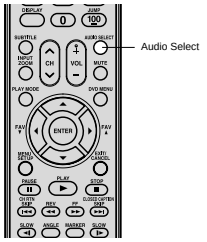
2. Press AUDIO SELECT repeatedly until the desired language is selected.
   - The on screen display will disappear after a few seconds.



In case of Video CD playback

Audio type changes as follows each time you press AUDIO SELECT.





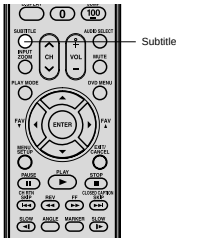
Notes:
- *If the desired language is not heard after pressing the button several times, the language is not recorded on the disc.*
- *Changing soundtrack language is cancelled when you eject the disc. The initial default language or available language will be heard if the disc is played back again.*
- *If you select DTS in playing DTS-encoded disc, no sound will be heard from the TV/DVD's speakers.*

Subtitles (DVD)

When playing back a disc recorded with subtitles, you can select the subtitle language or turn the subtitle off.

1. Press SUBTITLE repeatedly during playback until your desired language appears.

2. To turn off the subtitle, press subtitle until "Off" appears.
   - The on screen display will disappear after a few seconds.

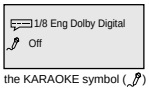


Notes:
- *Depending on the DVD, you may not be able to change subtitles, or to turn subtitles on or off.*
- *While playing a DVD, the subtitle may change when you loaded or eject the disc.*
- *In some cases, a selected subtitle language may not be changed immediately.*

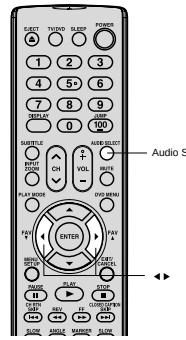
Karaoke playback (DVD)

You can turn the vocal on or off recorded on the DVD KARAOKE.

1. During DVD KARAOKE disc playback, press AUDIO SELECT.
   The KARAOKE symbol ( ) appears.
   - If you play non-Karaoke disc, the KARAOKE symbol ( ) does not appear.
   - Some Karaoke discs may not have the vocal on/off function. In this case, the KARAOKE symbol ( ) does not appear.



2. Press ◄ or ► to select "On" or "Off".
   On : The primary vocal is output when it is recorded on the disc.
   Off : The primary vocal is not output.
   - The on screen display will disappear after a few seconds.

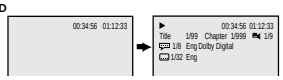


Notes:
- *The vocal output feature is used during playback of Dolby Digital (multi-channel) recorded DVD KARAOKE discs. This feature allows you to turn off vocal audio tracks, or restore them for background accompaniment.*
- *When playing Karaoke, connect appropriate audio equipment such as an amplifier to the TV/DVD.*

Disc status (DVD) (VCD) (CD)

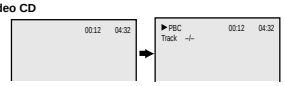
With each press of DISPLAY, the status of the disc will appear on the screen and change as follows.

DVD



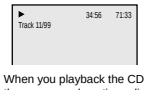
To make status display disappear, press DISPLAY again.

Video CD



To make status display disappear, press DISPLAY again.

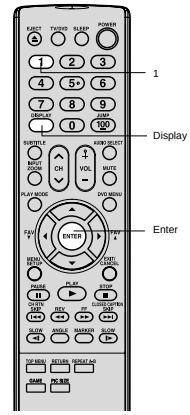
Audio CD



When you playback the CD disc, the status display will appear on the screen and continue displaying.

To turn off the PBC (VCD)

Press number button 1 in the stop mode, then press ENTER.



MP3/WMA/JPEG CD operation

This unit can play back MP3/WMA/JPEG-data which has been recorded on CD-R or CD-RW.
To produce MP3/WMA/JPEG-data, you need a Windows-PC with CD-R/RW drive and MP3/WMA/JPEG-encoding Software (not supplied).
Files recorded on an Apple® HFS (hierarchical file system) volume cannot be played.

MP3/WMA/JPEG CD information (CD)

Limitations on MP3/WMA/JPEG CD playback

- MP3/WMA/JPEG CDs must meet ISO9660 standards. Files must have one of the following extensions: .mp3, .wma, or .jpg.
- This unit can read 200 files per disc. If one directory has more than 200 files, the unit will read up to 200 files and any additional files will be ignored.
- The unit is able to recognize up to a maximum of 50 directories per disc.
- MP3/WMA/JPEG CDs cannot be used for the purpose of recording.
- If the CD has both audio tracks and MP3/WMA/JPEG files, only audio tracks are played.
- It may take more than one minute for this unit to read MP3/WMA/JPEG files depending on its structure.
- Music recorded by "Joliet Recording Specification" can be played back, the file name is displayed (within 16 letters) on the screen. Long file names will be condensed.
- Music files recorded on an Apple® HFS (hierarchical file system) volume cannot be played.

Limitations on display

- The maximum number for display is 16 letters.
  Available letters for display are the following:
  capital or small alphabets of A through Z, numbers of 0 through 9, and _ (under score).
- Other letters than those above are replaced in hyphen.

Notes on MP3/WMA/JPEG files

To play back MP3/WMA/JPEG CD in the recorded order,
1. Use MP3/WMA/JPEG software that records data alphabetically or numerically.
2. Name each file including two-digit or three-digit number (ex. "01" "02" or "001" "002").
3. Refrain from making too many sub-folders.

Notice:

- Some MP3/WMA/JPEG CDs cannot be played back depending on the recording conditions.
- The CD-R/RW that has no music data or non MP3/WMA/JPEG files cannot be played back.

Standard, sampling frequency, and the bit rate:

MP3 CD
MPEG-1 Audio
32kHz, 44.1kHz, 48kHz
32kbps ~ 320kbps (constant bit rate or variable bit rate)
The recommend recording setting for a high-quality sound is 44.1kHz of sampling frequency and 128kbps of constant bit rate.
WMA CD
WMA version 7, and 8
32kHz, 48kbps
44.1kHz, 48kbps ~ 192kbps
48kHz, 128kbps ~ 192kbps
The file recorded by mono, 48kHz, 48 kbps is not available to this unit.

The DVD player contained in this LCD TV requires discs/recordings to meet certain technical standards in order to achieve optimal playback quality. Pre-recorded DVDs are automatically set to these standards. There are many different types of recordable disc formats (including CD-R containing MP3/WMA files). Because this area of technology is still evolving, Toshiba cannot guarantee that all recordable discs will produce optimal playback quality. The technical criteria set forth in this owner's manual are meant only as a guide.

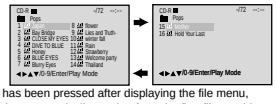
Please be advised that you must obtain permission from the applicable copyright owners to download copyrighted content, including music files, in any format, including the MP3 and WMA formats, prior to the downloading thereof. Toshiba has no right to grant and does not grant permission top download any copyrighted content.

Apple is a registered trademark of Apple Computer, Inc.

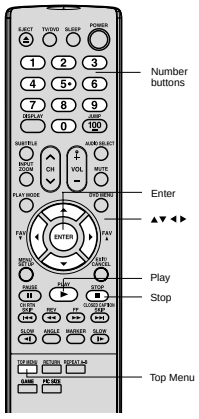
MP3/WMA CD playback (CD)

1. Load a disc on which MP3 or WMA files have been recorded in the disc slot.
2. A file menu screen will appear on the screen.
   Press ◀/▶ or ENTER to select folder.

3. Press ▲/▼/◀/▶ or Number buttons (0–9) to select the desired file.
   - In case the folder includes more than 15 files, press ◀ or ▶ to display next file list.



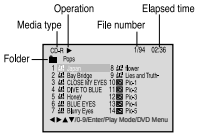
   - When PLAY has been pressed after displaying the file menu, playback begins automatically starting from the first file. In this case, if the first file is an MP3/WMA file, only MP3/WMA files are played back in order. If the first file is a JPEG file, the first JPEG file is played back.
4. Press ENTER.
   The selected file starts playing back.
5. Press STOP to end playback.
   - The unit records the stopped point. "▮◤" appears on the screen. Press PLAY to resume playback (from the scene point).
   - If you press STOP again or unload the disc, the unit will clear the stopped point.



Notes:

- *During MP3/WMA/JPEG playback, you cannot use JUMP, A-B Repeat functions.*
- *You can use Repeat (Track or All), Random functions and Program playback for MP3/WMA/JPEG CD playback (see pages 47 and 48).*
- *In the case of a CD containing a mixture of MP3, WMA and JPEG files, the files are played back by selecting them from the file menu.*

About file menu



: Indicates MP3 file
: Indicates WMA file
: Indicates JPEG file

Notes:

- *The picture menu is displayed when the FUJICOLOR CD or the Kodak Picture CD are played. To display the file menu, press TOP MENU.*
- *In the case of a CD containing a mixture of MP3, WMA and JPEG files, the files are played back by selecting them from the file menu.*
- *MP3 or WMA file on the Kodak Picture CD is not recognized on this unit.*

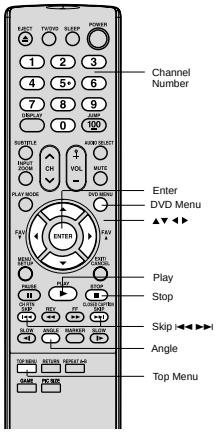
JPEG CD playback (CD)

You can select your desired JPEG file on the file menu and picture menu. The selected JPEG file is automatically adjusted to the TV screen. (When the aspect ratio of a JPEG file is different from that of the TV screen, black bars may appear at the top, bottom, and/or sides of the screen.

1. Load a disc on which JPEG files have been recorded in the slot.
2. A file menu screen will appear on the screen. Press ◀/▶ to select folder.

3. Press ▲/▼/◀/▶ or Number buttons (0–9) to select the desired file.
   To display a picture menu, press DVD MENU. (To return to a file menu, press TOP MENU.)
   Press ◀/▶/▲/▼ to select the desired file.
   - To display next list, press SKIP ⏮/⏭.
   - When PLAY has been pressed after displaying the file menu, playback begins automatically starting from the first file. In this case, if the first file is a JPEG file, the first JPEG file is played back. If the first file is an MP3/WMA file, only MP3/WMA files are played back in order.
4. Press ENTER. The selected picture appears on the screen.

   Rotating an image
   You can rotate an image by 90 degrees by pressing ANGLE during playback of the image.
   "🖻↻", "🖻↺", "🖻↔" or "🖻↕" appears briefly on the screen.
5. Press STOP to end playback.
   The file menu appears on the screen.
   If you want to watch the other file, repeat steps 3 ~ 4.

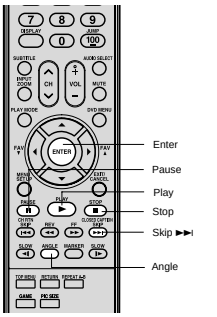


Slide show playback (CD)

The slide show enables you to view pictures (files) one after another automatically.

Preparation:
- Set "JPEG Interval" setting to "5 Seconds", "10 Seconds" or "15 Seconds". (See page 56.)

1. Select your desired starting file for the slide show in the step 3 on the above.
2. Press ENTER to start slide show from the selected file.
   - If you press PAUSE during the slide show, the slide show stops temporarily. "⏸" appears briefly on the picture.
     If the picture appears upside down or sideways, press ANGLE repeatedly until it's right side up.
     "🖻↻", "🖻↺", "🖻↔" or "🖻↕" appears briefly on the screen.
     Press PLAY or SKIP ⏭ again to resume the slide show.
   - When slide show playback is finished, the file list appears.
   - To stop the slide show, press STOP. The file list appears.

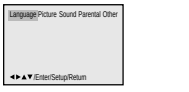


DVD function setup

Customizing the function settings

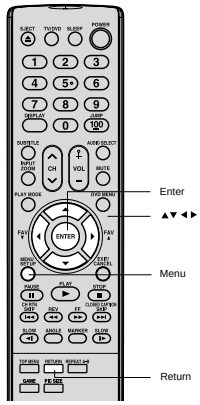
You can change the default settings of the DVD mode to customize performance to your preference.

Setting procedure
1. Press SETUP during stop mode.
   The following on-screen display appears.



2. Press ◀ or ▶ to select the desired section, then press ▼ or ENTER.
3. Press ▲ or ▼ to select the desired option.
4. Change the selection using ▲/▼/◀/▶ or ENTER (see "Setting details" on pages 56 and 57).
   - Repeat step 3 and 4 to change other settings.
   - Press ▲ to select another operation, go back to step 2.
5. To make SETUP screen disappear, press SETUP or RETURN.

Section	Option	Details	Page
Language	**Menu** **Subtitle** **Audio**	To select the language of "Menu", "Subtitle" and "Audio" if their languages are recorded on the disc in more than one language.	56
Picture	**TV Screen**	To select a picture size.	
	Display	To turn on or deactivate the operational status display on the screen.	
	JPEG Interval	To select a preferred setting for the slide show playback.	
	Select Files	To select your desired file type for playing back a disc containing a mixture of MP3, WMA, and JPEG files.	
Sound	**DRC**	To select On or Off for DRC (Dynamic Range Control).	57
Parental	**Password**	Input 4-digit password to set the parental level.	
	Parental	To select a preferred parental level for the parental setting.	
Other	**OSD Language**	To select a preferred language for on screen display.	



Setting details

Language

Menu, Subtitle, Audio
You can select the language of "Menu", "Subtitle" and "Audio" if more than one language is recorded onto the disc.

English, Francais, Espanol:
The selected language will be heard or seen.

Other:
Other language can be selected (see the "Language code list" page 59).

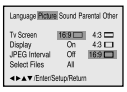
Original: (Audio)
The unit will select the first priority language of each disc.

Automatic: (Subtitle)
- The unit will automatically select the same language in the AUDIO setting.
- When the unit selects the same language as the AUDIO, the subtitles will not appear during playback.
- When you do not use the same language as the AUDIO, the subtitles will appear during playback.

Off: (Subtitle)
Subtitles do not appear.

Note:
If the selected language is not recorded on the disc, the first-priority language is selected.

Picture



Tv Screen
You have the following screen sizes to choose from:

4:3 Letter box:
When playing back a wide screen-DVD disc, it displays the wide picture with black bands at the top and bottom of screen.

4:3 Pan scan:
It displays the wide picture on the whole screen with left and right edges automatically cut off.

16:9 Wide:
A wide screen picture is displayed full size.

Note:
If the DVD disc is not formatted in the pan & scan style, it displays 4:3 style.

Display
On screen display can be switched on or off when you press the buttons.

On: On screen displays appear when you press the buttons (factory setting).

Off: On screen displays do not appear when you press any buttons.

JPEG Interval
You can continuously play back all JPEG files automatically. After the setting below, start playing the disc on which JPEG files have been recorded.

Off:
Plays back one file at a time.

5 Seconds:
Plays back images in the form of a slide show at 5 second intervals.

10 Seconds:
Plays back images in the form of a slide show at 10 second intervals.

15 Seconds:
Plays back images in the form of a slide show in 15 second intervals.

Select Files
When playing back a CD containing a mixture of MP3, WMA and JPEG files, only MP3/WMA or JPEG files can be displayed on the file menu.

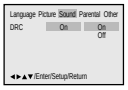
All:
Displays all files.

Music Only:
Displays only MP3/WMA files.

Pictures Only:
Displays only JPEG files.

Setting details

Sound



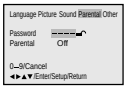
DRC
DRC (Dynamic Range Control) enables you to control the dynamic range so as to achieve a suitable sound for your equipment.

On: Loud sound such as explosion or similar is toned down slightly when played back. This makes it suitable for when it is connected to a stereo.

Off: It plays back at the recording level on the disc.

Notes:
- This function works only during playback of Dolby Digital recorded discs.
- The level of Dynamic Range Reduction may differ depending on DVD video disc.

Parental



Parental control setting
Some discs are specified not suitable for children. Such discs can be limited not to play back with the unit.

1) Press ▲ or ▼ to select "Parental", then press ◄ or ► until the level you require appears.
   - Level Off: The parental control setting does not function.
   - Level 8: Virtually all DVD software can be played back.
   - Level 1: DVD software for adults cannot be played back.

   Select from the level 1 to level 8. The limitation will be more severe as the level number is lower.
2) Press ▲ or ▼ to select "Password".
   Press Number buttons (0–9) to input a 4-digit password. Be sure to remember this number!
   - If you input a wrong number, press CANCEL.
3) Press ENTER to store the password.
   Note: Now the rating is locked and the setting cannot be changed unless you enter the correct password.

Notes:
- Depending on the discs, the unit cannot limit playback.
- Some discs may not be encoded with specific rating level information though its disc jacket says "adult." For those discs, the age restriction will not work.

To change the parental level
1) Press ▲ or ▼ to select "Password".
2) Press Number buttons (0–9) to enter the password you have stored.
3) Press ENTER.
   • The rating is now unlocked.
4) Press ▲ or ▼ to select "Parental", then press ◄ or ► to change the parental level.
5) Press ▲ or ▼ to select "Password", then press Number buttons (0–9) to enter the password.
   Note: You can change the password if you want.
6) Press ENTER.
   Now the parental level is changed and locked.

If you forget the password...
1. Press EJECT.
2. Remove the disc after the disc comes out.
3. "No Disc" appears on the screen.
4. While holding STOP down on the top of the unit, press 7 on the remote control. "PASSWORD CLEAR" appears on the screen.
5. Enter a new password again.

Other

OSD Language
The setup language can be selected.

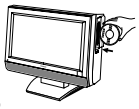
English:	To display OSD language in English.
Francais:	To display OSD language in French.
Espanol:	To display OSD language in Spanish.

Note:
After completing the setup on pages 56 and 57, the settings will be retained in the memory (especially with DVD discs), even if you turn off the power.

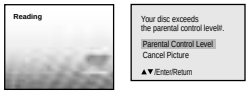
Temporary disabling of parental level by DVD disc

Depending on the DVD disc, the disc may try to temporarily cancel the parental level that you have set.
It is up to you to decide whether to cancel the rating level or not.

1. Load a DVD disc.

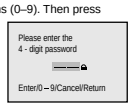


2. If the DVD disc has been designed to temporarily cancel the Rating level, the screen which follows the "Reading" screen will change, depending on which disc is played. If you select "YES" with the ENTER key, "Your disc exceeds the parental control level#." screen will then appear.

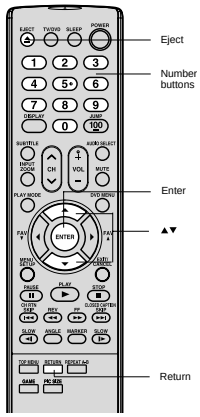


3. If you wish to cancel the set rating level temporarily, select "Parental Control Level" with ▲ or ▼, then press ENTER. If the 4-digit password at step 2 on page 57 has been set, the password entering screen will appear as shown in step 4. Alternatively, if the password has not been set, playback will commence. If you don't know (or have forgotten) the password, select "Cancel Picture". The setting screen will disappear. Press EJECT on the unit to remove the disc.

4. Enter the password with Number buttons (0–9). Then press ENTER.
   To exit from the entry, press RETURN.



5. Playback will commence if the entered password was correct.



Note:
This temporary cancellation of rating level will be kept until the disc is ejected.
When the disc is ejected, the original parental level will be set again automatically.

Appendix

Language code list

Enter the appropriate code number for the initial settings "Menu", "Subtitle" and/or "Audio." See page 56.

Language Name	Code	Language Name	Code	Language Name	Code	Language Name	Code
Abkhazian	1112	Fiji	1620	Lingala	2224	Singhalese	2919
Afar	1111	Finnish	1619	Lithuanian	2230	Slovak	2921
Afrikaans	1116	French	1628	Macedonian	2321	Slovenian	2922
Albanian	2927	Frisian	1635	Malagasy	2317	Somali	2925
Amharic	1123	Galician	1722	Malay	2329	Spanish	1529
Arabic	1128	Georgian	2111	Malayalam	2322	Sundanese	2931
Armenian	1835	German	1415	Maltese	2330	Swahili	2933
Assamese	1129	Greek	1522	Maori	2319	Swedish	2932
Aymara	1135	Greenlandic	2122	Marathi	2328	Tagalog	3022
Azerbaijani	1136	Guarani	1724	Moldavian	2325	Tajik	3017
Bashkir	1211	Gujarati	1731	Mongolian	2324	Tamil	3011
Basque	1531	Hausa	1811	Nauru	2411	Tatar	3030
Bengali; Bangla	1224	Hebrew	1933	Nepali	2415	Telugu	3015
Bhutani	1436	Hindi	1819	Norwegian	2425	Thai	3018
Bihari	1218	Hungarian	1831	Oriya	2528	Tibetan	1225
Breton	1228	Icelandic	1929	Panjabi	2611	Tigrinya	3019
Bulgarian	1217	Indonesian	1924	Pashto, Pushto	2629	Tonga	3025
Burmese	2335	Interlingua	1911	Persian	1611	Turkish	3028
Byelorussian	1215	Irish	1711	Polish	2622	Turkmen	3021
Cambodian	2123	Italian	1930	Portuguese	2630	Twi	3033
Catalan	1311	Japanese	2011	Quechua	2731	Ukrainian	3121
Chinese	3618	Javanese	2033	Rhaeto-Romance	2823	Urdu	3128
Corsican	1325	Kannada	2124	Romanian	2825	Uzbek	3136
Croatian	1828	Kashmiri	2129	Russian	2831	Vietnamese	3219
Czech	1329	Kazakh	2121	Samoan	2923	Volapük	3225
Danish	1411	Kirghiz	2135	Sanskrit	2911	Welsh	1335
Dutch	2422	Korean	2125	Scots Gaelic	1714	Wolof	3325
English	1524	Kurdish	2131	Serbian	2928	Xhosa	3418
Esperanto	1525	Laothian	2225	Serbo-Croatian	2918	Yiddish	2019
Estonian	1530	Latin	2211	Shona	2924	Yoruba	3525
Faroese	1625	Latvian, Lettish	2232	Sindhi	2914	Zulu	3631

Appendix

Troubleshooting

Before calling a service technician, please check the following table for a possible cause of the symptom and some solutions.

Symptom	Solution
TV will not turn on	• Make sure the connection of the AC adapter and AC cord, then press POWER. • The remote control batteries may be dead. Replace the batteries.
No picture, no sound	• Check the antenna/cable connections.
No sound, picture OK	• The sound may be muted. Press VOLUME. • The station may have broadcast difficulties. Try another channel. • The MTS feature may be in SAP mode. Select STR or MONO in the MTS menu.
Poor sound, picture OK	• The station may have broadcast difficulties. Try another channel. • The MTS feature may be in SAP mode. Select STR or MONO in the MTS menu.
Poor picture, sound OK	• Check the antenna connections. • The station may have broadcast difficulties. Try another channel. • Adjust the PICTURE menu.
Picture and sound are out of sync	As with all products that contain a digital display, in rare instances, when viewing certain content (e.g.. television broadcasts, video games, DVD), you may notice that the sound and picture are slightly out of sync. This phenomenon can be caused by various factors including, without limitation, video processing within the TV, video processing in an attached gaming system, and video processing/different compression rates used by broadcasters in their programming. You may want to try one or more of the following suggestions, which may help to reduce the effect of this phenomenon: • If the TV is connected to an external A/V device (e.g., DVD player, video game system, set-top-box, etc.) always try to use the Color Stream video jacks and corresponding audio jacks or the HDMI input (if available on your TV) for connection to such external A/V device. • If the TV is connected to an A/V receiver that has a programmable audio delay feature, use this feature to help synchronize the sound to the picture. • If connected to a video game system and your TV has the Game Mode feature (see owner's manual for more information), enable this feature. • If you notice this phenomenon only on cetain TV channels, please contact your local broadcast, cable, or satellite provider to inform them of this issue.
Poor reception of broadcast channels	• The station may have broadcast difficulties. Try another channel. • Check the antenna connections.
Cannot receive above channel 13	• Make sure TV/CABLE is set to CABLE mode.
Unable to select a certain channel	• The channel may be blocked by the V-Chip feature or CH LOCK feature, or erased with the add/erase feature.
Cannot access signal input sources (Video1, Video2, ColorStream HD, HDMI and PC) and/or Channels 3 and 4	• Check the VIDEO LOCK feature.
Multiple images	• The station may have broadcast difficulties. Try another channel. • Use a highly directional outdoor antenna.
Poor color or no color	• The station may have broadcast difficulties. Try another channel. • Adjust the TINT and/or COLOR in the PICTURE menu.
Black box on screen	• Select OFF in the Closed Caption menu to turn off the Closed Caption Text mode.
No stereo or SAP sound from a known MTS broadcast	• Make sure the MTS feature is set properly (AUDIO menu).
The V-Chip password does not work (U.S. V-Chip system only)	• Change or reset your password.
The remote control does not operate	• Remove all obstructions between the remote control and the TV. • The remote control batteries may be dead. Replace the batteries.
The top panel buttons do not operate	• Check the PANEL LOCK feature.

Troubleshooting (continued)

Symptom of DVD	Solution
Playback doesn't start	• No disc is loaded. • The disc may be dirty. Clean the disc. • The unit cannot play CD-ROMs, etc.
No picture	• TV/DVD selector is not set correctly.
No sound	• Make sure the input selector of the amplifier is set properly. • The unit is in the special playback mode. • Select the correct Audio Output/Input position on AV amplifier.
Picture is distorted during fast reverse/forward playback	• The picture will be distorted occasionally.
Stopping playback, search, slow-motion play, repeat play, or program play, etc. cannot be performed	• Some discs may not perform certain functions.
No on-screen display	• Select Display On.
No surround sound	• The setup does not match your stereo system.
The unit or remote operation key is not functioning	• Turn off the unit and unplug the AC power cord for several minutes, then replug it.
Playback does not start when the title is selected	• Check the Parental level setup.
Audio soundtrack and/or subtitle language is not changed when you play back a DVD	• Multilingual language is not recorded on the DVD disc.
No subtitle	• Some discs have no subtitles. • Subtitles are cleared. Press SUBTITLE.
Angle cannot be changed	• Multi-angles are not recorded on the DVD discs.
"🖐" appears on the screen	• The function is prohibited with the unit or the disc.

Specifications

Notes:
- This model complies with the specifications listed below.
- Designs and specifications are subject to change without notice.
- This model may not be compatible with features and/or specifications that may be added in the future.

	17HLV85	20HLV85
Television		
LCD panel	17.1 inches (434.4 mm diagonal) (Screen size is approximate.)	20.04 inches (508.9 mm diagonal) (Screen size is approximate.)
Display method	Color TFT LCD	
Number of pixels	1280 (Horizon) x 768 (Vertical)	1366 (Horizon) x 768 (Vertical)
Television system	NTSC standard	
Tuner type	F-Synth	
Channel coverage	VHF: 2 – 13 UHF: 14 – 69 Cable TV: 4A, A-5 – A-1, A-I, J – W, W+1 – W+84	
Antenna input	VHF/UHF 75 ohm	
Power source	120V AC, 60 Hz with supplied AC adapter	
Power consumption	65 W with supplied AC adapter	100 W with supplied AC adapter
Audio power	1.5 W x 1.5 W	2.5 W + 2.5 W
Speaker type	1.5 x 2.7 inches (38.1 x 68.6 mm), 16 ohm x 2	1.8 x 3.9 inches (45.7 x 99.1 mm), 16 ohm x 2
Video/Audio terminals	S-VIDEO INPUT Y-INPUT: 1V (p-p), 75 ohm, negative sync., Mini DIN 4pin x 1 C-INPUT: 0.286V (p-p) (burst signal), 75 ohm VIDEO/AUDIO INPUT VIDEO: 1V (p-p), 75 ohm, negative sync., pin jack x 2 AUDIO: 150 mV (rms) (30% modulation equivalent, 47k ohm), pin jack (L/R) x 5 ColorStream® (component video) INPUT Y: 1V (p-p), 75 ohm P_B: 0.7V (p-p), 75 ohm P_R: 0.7V (p-p), 75 ohm DIGITAL AUDIO OUTPUT (Coaxial) DVD mode only 0.5V (p-p), 75 ohm, pin jack (L/R) x 1 HEADPHONE Ø3.5mm stereo mini jack x 1 HDMI INPUT: HDMI compliant (type A connector) HDCP compliant E-EDID* compliant Suggested scan rates: 1080i, 480p, 480i, 720p HDMI Audio: 2-channel PCM 32/44.1/48 kHz sampling frequency 16/20/24 bits per sample PC Monitor Input Mini-Dsub 15pin x 1	
Dimensions	Width: 17-15/16 inches (456 mm) Height: 16-1/8 inches (409 mm) Depth: 8-11/16 inches (220 mm)	Width: 21-13/16 inches (554 mm) Height: 17-5/8 inches (448 mm) Depth: 8-11/16 inches (220 mm)
Weight	17.6 lbs. (8.0 kg)	19.8 lbs. (9.0 kg)
Supplied accessories	Remote control (DC-LWB1) with two size "AAA" batteries AC adapter AC cord (for AC adapter) Owner's Manual (This booklet)	
DVD/CD Player		
Signal system	NTSC	
Applicable disc	1. DVD (12cm, 8cm [with Disc adapter]) 2. CD (12cm, 8cm [with Disc adapter])	
Pickup	1-Lens, 2-Beams System	

* E-EDID = Enhanced-Extended Display Identification.

WARNING: Always use the Toshiba wall bracket specified below or another wall bracket approved by Toshiba for wall mounting this television. The use of any wall bracket other than the Toshiba wall bracket specified below or another wall bracket approved by Toshiba for wall mounting this television could result in serious bodily injury and/or property damage.
In the U.S.: Use Toshiba wall bracket model number **FWB2027**. For more information, call TACP's Consumer Solutions Center at 1-800-631-3811 or visit TACP's website at **www.tacp.toshiba.com**.
In Canada: Call TCL's Customer Service Department at 1-800-268-3404.

Limited United States Warranty

LCD TV/DVD Combination - Depot Repair Warranty

Toshiba America Consumer Products, L.L.C. ("TACP") makes the following limited warranties to original consumers in the United States. **THESE LIMITED WARRANTIES EXTEND TO THE ORIGINAL CONSUMER PURCHASER OR ANY PERSON RECEIVING THIS LCD TV/DVD COMBINATION AS A GIFT FROM THE ORIGINAL CONSUMER PURCHASER AND TO NO OTHER PURCHASER OR TRANSFEREE.**

LCD TV/DVD COMBINATIONS PURCHASED IN THE U.S.A. AND USED ANYWHERE OUTSIDE OF THE U.S.A., INCLUDING, WITHOUT LIMITATION, CANADA AND MEXICO, ARE NOT COVERED BY THESE WARRANTIES.

LCD TV/DVD COMBINATIONS PURCHASED ANYWHERE OUTSIDE OF THE U.S.A., INCLUDING, WITHOUT LIMITATION, CANADA AND MEXICO, AND USED IN THE U.S.A., ARE NOT COVERED BY THESE WARRANTIES.

Limited One (1) Year Warranty on Parts and Labor
TACP warrants this LCD TV/DVD Combination and its parts against defects in materials or workmanship for a period of one (1) year after the date of original retail purchase. **DURING THIS PERIOD, TACP WILL, AT TACP'S OPTION, REPAIR OR REPLACE A DEFECTIVE PART WITH A NEW OR REFURBISHED PART WITHOUT CHARGE TO YOU.**

Rental Units
The warranty for LCD TV/DVD Combination rental units begins on the date of the first rental or thirty (30) days after the date of shipment to the rental firm, whichever comes first.

Commercial Units
LCD TV/DVD Combinations sold and used for commercial purposes have a limited warranty for all parts and labor, which warranty begins on the date of original retail purchase and ends on the date that is ninety (90) days thereafter.

Owner's Manual and Product Registration Card
Read this owner's manual thoroughly before operating this LCD TV/DVD Combination.

Complete and mail the enclosed product registration card or register your LCD TV/DVD Combination on-line at **http://www.tacp.toshiba.com/service** as soon as possible. By registering your LCD TV/DVD Combination you will enable TACP to bring you new products specifically designed to meet your needs and help us to contact you in the unlikely event a safety notification is required under the U.S. Consumer Product Safety Act. Failure to complete and return the product registration card does not diminish your warranty rights.

Your Responsibility
THE ABOVE WARRANTIES ARE SUBJECT TO THE FOLLOWING CONDITIONS:

(1) You must retain your bill of sale or provide other proof of purchase.

(2) All warranty servicing of this LCD TV/DVD Combination must be made by the Depot Warranty Repair Center specified by the TACP Consumer Solutions Center.

(3) The warranties from TACP are effective only if the LCD TV/DVD Combination is purchased and operated in the Continental U.S.A. or Puerto Rico.

(4) Labor service charges for set installation, setup, adjustment of customer controls, and installation or repair of antenna systems are not covered by this warranty. Reception problems caused by inadequate antenna systems, misaligned satellite dishes, cable television distribution, VCRs, DVD players/recorders, personal computer level IEEE-1394 devices, and any other connected signal source device are your responsibility.

(5) Warranties extend only to defects in materials or workmanship as limited above, and do not extend to any LCD TV/DVD Combination or parts that have been lost or discarded by you or to damage to the LCD TV/DVD Combination or parts caused by fires, misuse, accident, Acts of God (such as lightning or fluctuations in electric power), improper installation, improper maintenance, or use in violation of instructions furnished by TACP; use or malfunction through simultaneous use of this LCD TV/DVD Combination and connected equipment; or to units that have been modified or had the serial number removed, altered, defaced, or rendered illegible.

How to Obtain Warranty Services
If, after following all of the operating instructions in this manual and checking the section "Troubleshooting," you find that service is needed:

(1) For instructions on how to obtain warranty service for your LCD Television, contact TACP's Consumer Solution Center toll free at 1-800-575-5469.

(2) You must include a copy or original bill of sale or other proof of purchase along with the entire LCD TV/DVD Combination to the Depot Warranty Repair Center specified by the TACP Consumer Solutions Center. You are responsible for all inbound transportation and insurance charges for the LCD TV/DVD Combination to the Depot Warranty Repair Center specified by the TACP Consumer Solutions Center.

For additional information, visit TACP's website:
www.tacp.toshiba.com

ALL WARRANTIES IMPLIED BY THE LAW OF ANY STATE OF THE U.S.A., INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE EXPRESSLY LIMITED TO THE DURATION OF THE LIMITED WARRANTIES SET FORTH ABOVE. WITH THE EXCEPTION OF ANY WARRANTIES IMPLIED BY THE LAW OF ANY STATE OF THE U.S.A. AS HEREBY LIMITED, THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, GUARANTEES, AGREEMENTS, AND SIMILAR OBLIGATIONS OF TACP WITH RESPECT TO THE REPAIR OR REPLACEMENT OF ANY PARTS. IN NO EVENT SHALL TACP BE LIABLE FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, LOST PROFITS, BUSINESS INTERRUPTION, OR MODIFICATION OR ERASURE OF RECORDED DATA CAUSED BY USE, MISUSE OR INABILITY TO USE THIS LCD TV/DVD COMBINATION).

No person, agent, distributor, dealer, or company is authorized to change, modify, or extend the terms of these warranties in any manner whatsoever. The time within which an action must be commenced to enforce any obligation of TACP arising under the warranty or under any statute or law of the United States or any state thereof is hereby limited to ninety (90) days from the date you discover, or should have discovered, the defect. This limitation does not apply to implied warranties arising under state law.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH MAY VARY FROM STATE TO STATE IN THE U.S.A. SOME STATES OF THE U.S.A. DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, WHEN AN ACTION MAY BE BROUGHT, OR THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE PROVISIONS MAY NOT APPLY TO YOU UNDER SUCH CIRCUMSTANCES.

Limited Canada Warranty

LCD TV/DVD (from for 14" to 32" Television Models)

Toshiba of Canada Limited ("TCL") makes the following limited warranties to original consumers in Canada. THESE LIMITED WARRANTIES EXTEND TO THE ORIGINAL CONSUMER PURCHASER OR ANY PERSON RECEIVING THIS LCD TV/DVD AS A GIFT FROM THE ORIGINAL CONSUMER PURCHASER AND TO NO OTHER PURCHASER OR TRANSFEREE.

PRODUCTS PURCHASED IN THE U.S.A. AND USED IN CANADA ARE NOT COVERED BY THESE WARRANTIES.

PRODUCTS PURCHASED IN CANADA AND USED IN THE U.S.A. ARE NOT COVERED BY THESE WARRANTIES.

Limited One (1) Year Warranty on Parts and Labor*

TCL warrants this LCD TV/DVD and its parts against defects in materials or workmanship for a period of one (1) year after the date of original retail purchase. DURING THIS PERIOD, TCL WILL, AT TCL'S OPTION, REPAIR OR REPLACE A DEFECTIVE PART WITH A NEW OR REFURBISHED PART WITHOUT CHARGE TO YOU FOR PARTS OR LABOR. YOU MUST DELIVER THE ENTIRE LCD TV/DVD TO AN AUTHORIZED TCL SERVICE DEPOT. YOU MUST PAY FOR ALL TRANSPORTATION AND INSURANCE CHARGES FOR THE TELEVISION TO AND FROM THE SERVICE DEPOT.

Rental Units

The warranty for rental units begins with the date of first rental or thirty (30) days from the date of shipment to the rental firm, whichever comes first.

***Limited Warranty for Commercial Units**

TCL warrants LCD TV/DVD units sold and used for commercial purposes as follows: all parts are warranted against defects in materials or workmanship for a period of ninety (90) days after the date of original purchase. DURING THIS PERIOD, TCL WILL, AT TCL'S OPTION, REPAIR OR REPLACE A DEFECTIVE PART WITH A NEW OR REFURBISHED PART WITHOUT CHARGE TO YOU. YOU MUST DELIVER THE ENTIRE TELEVISION TO AN AUTHORIZED TCL SERVICE DEPOT. YOU MUST PAY FOR ALL TRANSPORTATION AND INSURANCE CHARGES FOR THE TELEVISION TO AND FROM THE SERVICE DEPOT.

Owner's Manual and Product Registration

Read this owner's manual thoroughly before operating this television.

Register your product online at **www.toshiba.ca** as soon as possible. By registering your product you will enable TCL to provide you with better customer service and improved product support. Failure to register your product does not diminish your warranty rights.

Your Responsibility

THE ABOVE WARRANTIES ARE SUBJECT TO THE FOLLOWING CONDITIONS:

(1) You must provide your bill of sale or other proof of purchase.

(2) All warranty servicing of this LCD TV/DVD must be performed by an Authorized TCL Service Depot.

(3) These warranties from TCL are effective only if the LCD TV/DVD is purchased in Canada from an authorized TCL dealer and operated in Canada.

(4) Labor charges for installation, setup, adjustment of customer controls, and installation or repair of antenna systems are not covered by these warranties. Reception problems caused by inadequate antenna systems are your responsibility.

(5) Warranties extend only to defects in materials or workmanship as limited above, and do not extend to any television or parts that have been lost or discarded by you or to damage to the television or parts caused by fires, misuse, accident, Acts of God (such as lightning or fluctuations in electric power), improper installation, improper maintenance, or use in violation of instructions furnished by TCL; use or malfunction through simultaneous use of this product and connected equipment; or to units that have been modified or had the serial number removed, altered, defaced, or rendered illegible.

How to Obtain Warranty Services

If, after following all of the operating instructions in this manual and checking the "Troubleshooting" section, you find that service is needed:

(1) To find the nearest TCL Authorized Service Depot, visit TCL's web site at **www.toshiba.ca.**

(2) Present your bill of sale or other proof of purchase to the Authorized Service Depot.

For additional information, visit TCL's web site: www.toshiba.ca

ALL WARRANTIES IMPLIED BY THE LAW OF ANY PROVINCE OF CANADA, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE EXPRESSLY LIMITED TO THE DURATION OF THE LIMITED WARRANTIES SET FORTH ABOVE. WITH THE EXCEPTION OF ANY WARRANTIES IMPLIED BY THE LAW OF ANY PROVINCE OF CANADA AS HEREBY LIMITED, THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, GUARANTEES, AGREEMENTS, AND SIMILAR OBLIGATIONS OF TCL WITH RESPECT TO THE REPAIR OR REPLACEMENT OF ANY PARTS. IN NO EVENT SHALL TCL BE LIABLE FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, LOST PROFITS, BUSINESS INTERRUPTION, OR MODIFICATION OR ERASURE OF RECORDED DATA CAUSED BY USE, MISUSE, OR INABILITY TO USE THIS PRODUCT).

No person, agent, distributor, dealer, or company is authorized to change, modify, or extend the terms of these warranties in any manner whatsoever. The time within which action must be commenced to enforce any obligation of TCL arising under this warranty or under any law of Canada or of any province thereof is hereby limited to 90 days from the date you discover, or should have discovered, the defect. This limitation does not apply to implied warranties arising under the law of any province of Canada.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS, WHICH MAY VARY FROM PROVINCE TO PROVINCE IN CANADA. SOME PROVINCES OF CANADA DO NOT ALLOW LIMITATIONS ON THE DURATION OF AN IMPLIED WARRANTY, LIMITATIONS ON THE TIME WITHIN WHICH AN ACTION MAY BE BROUGHT, OR THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES; THEREFORE, THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU UNDER SUCH CIRCUMSTANCES.

MEMO

CAUTION

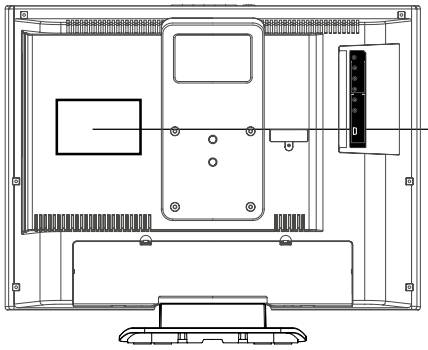
THIS LCD COLOR TELEVISION EMPLOYS A LASER SYSTEM.

TO ENSURE PROPER USE OF THIS PRODUCT, PLEASE READ THIS SERVICE MANUAL CAREFULLY AND RETAIN FOR FUTURE REFERENCE. SHOULD THE UNIT REQUIRE MAINTENANCE, CONTACT AN AUTHORIZED SERVICE LOCATION-SEE SERVICE PROCEDURE.

USE OF CONTROLS, ADJUSTMENTS OR THE PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

TO PREVENT DIRECT EXPOSURE TO LASER BEAM, DO NOT TRY TO OPEN THE ENCLOSURE. VISIBLE LASER RADIATION MAY BE PRESENT WHEN THE ENCLOSURE IS OPENED. DO NOT STARE INTO BEAM.

Location of the required Marking
The rating sheet and the safety caution are on the rear of the unit.



CERTIFICATION: COMPLIES WITH FDA RADIATION PERFORMANCE STANDARDS, 21 CFR SUBCHAPTER J.

PREPARATION OF SERVICING

The laser diode used for a pickup head may be destroyed with external static electricity.
Moreover, even if it is operating normally after repair, when static electricity discharge is received at the time of repair, the life of the product may be shortened.
Please perform the following measure against static electricity, be careful of destruction of a laser diode at the time of repair.

- Place the unit on a workstation equipped to protect against static electricity, such as conductive mat.
- Soldering iron with ground wire or ceramic type is used.
- A worker needs to use a ground conductive wrist strap for body.

IMPORTANT SERVICE SAFETY INFORMATION

Safety precautions to be followed during servicing:

1. Parts marked with an ⚠ are critical parts for safety. Replace only with the one described in the parts list.
2. Before returning the DVD product to the customer, make the appropriate leakage current check or resistance measurements to ensure that exposed parts are properly insulated from the supply circuit.

A leakage current check is recommended for this unit. Plug the AC line cord directly into a 120V 60Hz AC outlet (do not use an isolation transformer for this check). Use a leakage current tester (Fig. 1) or a metering system which complies with Underwriters Laboratories (UL 1492P). Measure for current from all exposed metal parts of the cabinet to a known earth ground: particularly, any exposed metal part having a return path to the chassis. Any current measured must not exceed 0.5mA. Any measurement not within the limits outlined above are indicative of a potential shock hazard and corrective action must be taken before returning the unit to the customer.

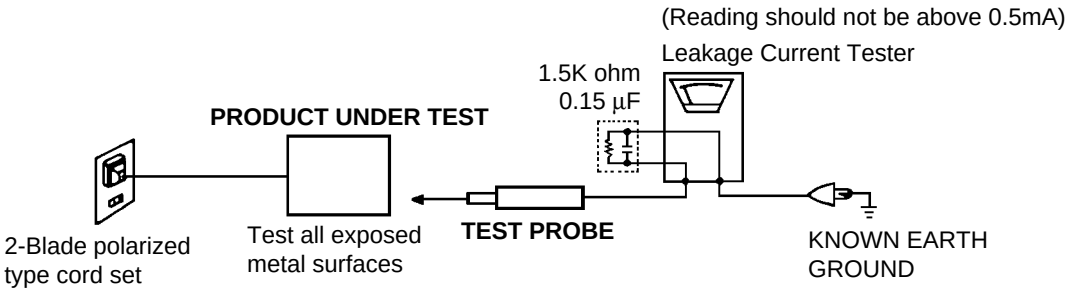


Fig. 1 AC Leakage Test

IMPORTANT SAFEGUARDS

1. **READ INSTRUCTIONS**
   All the safety and operating instructions should be read before the unit is operated.
2. **RETAIN INSTRUCTIONS**
   The safety and operating instructions should be retained for future reference.
3. **HEED WARNINGS**
   All warnings on the unit and in the operating instructions should be adhered to.
4. **FOLLOW INSTRUCTIONS**
   All operating and use instructions should be followed.
5. **CLEANING**
   Unplug this unit from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
6. **ATTACHMENTS**
   Do not use attachments not recommended by the unit's manufacturer as they may cause hazards.
7. **WATER AND MOISTURE**
   Do not use this unit near water. For example, near a bathtub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool.
8. **ACCESSORIES**
   Do not place this unit on an unstable cart, stand, tripod, bracket, or table. The unit may fall, causing serious injury, and serious damage to the unit. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer.

PORTABLE CART WARNING
(symbol provided by RETAC)

S3126A

8A. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

9. **VENTILATION**
   Slots and openings in the cabinet and in the back or bottom are provided for ventilation, to ensure reliable operation of the unit, and to protect it from overheating. These openings must not be blocked or covered. The openings should never be blocked by placing the unit on a bed, sofa, rug, or other similar surface. This unit should never be placed near or over a radiator or heat source. This unit should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.
10. **POWER SOURCES**
    This unit should be operated only from the type of power source indicated on the rating plate. If you are not sure of the type of power supply to your home, consult your appliance dealer or local power company. For units intended to operate from battery power, or other sources, refer to the operating instructions.
11. **GROUNDING OR POLARIZATION**
    This unit is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug. If your unit is equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin, this plug will only fit into a grounding-type power outlet. This too, is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.
12. **POWER-CORD PROTECTION**
    Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
13. **LIGHTNING**
    To protect your unit from a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the unit due to lightning and power line surges.
14. **POWER LINES**
    An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits, as contact with them might be fatal.
15. **OVERLOADING**
    Do not overload wall outlets and extension cords, as this can result in a risk of fire or electric shock.
16. **OBJECT AND LIQUID ENTRY**
    Do not push objects through any openings in this unit, as they may touch dangerous voltage points or short out parts that could result in fire or electric shock. Never spill or spray any type of liquid into the unit.

17. OUTDOOR ANTENNA GROUNDING

If an outside antenna or cable system is connected to the unit, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code, ANSI/NFPA 70, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

18. SERVICING

Do not attempt to service this unit yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

19. DAMAGE REQUIRING SERVICE

Unplug this unit from the wall outlet and refer servicing to qualified service personnel under the following conditions:

a. When the power-supply cord or plug is damaged.
b. If liquid has been spilled, or objects have fallen into the unit.
c. If the unit has been exposed to rain or water.
d. If the unit does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions, as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the unit to its normal operation.
e. If the unit has been dropped or the cabinet has been damaged.
f. When the unit exhibits a distinct change in performance, this indicates a need for service.

20. REPLACEMENT PARTS

When replacement parts are required, be sure the service technician uses replacement parts specified by the manufacturer or those that have the same characteristics as the original parts.
Unauthorized substitutions may result in fire, electric shock or other hazards.

21. SAFETY CHECK

Upon completion of any service or repairs to this unit, ask the service technician to perform safety checks to determine that the unit is in proper operating condition.

22. WALL OR CEILING MOUNTING

The product should be mounted to a wall or ceiling only as recommended by the manufacturer.

23. HEAT

The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

24. DISC TRAY

Keep your fingers well clear of the disc tray as it is closing. It may cause serious personal injury.

25. CONNECTING

When you connect the product to other equipment, turn off the power and unplug all of the equipment from the wall outlet. Failure to do so may cause an electric shock and serious personal injury. Read the owner's manual of the other equipment carefully and follow the instructions when making any connections.

26. SOUND VOLUME

Reduce the volume to the minimum level before you turn on the product. Otherwise, sudden high volume sound may cause hearing or speaker damage.

27. SOUND DISTORTION

Do not allow the product output distorted sound for a longtime. It may cause speaker overheating and fire.

28. HEADPHONES

When you use the headphones, keep the volume at a moderate level. If you use the headphones continuously with high volume sound, it may cause hearing damage.

29. LASER BEAM

Do not look into the opening of the disc tray or ventilation opening of the product to see the source of the laser beam. It may cause sight damage.

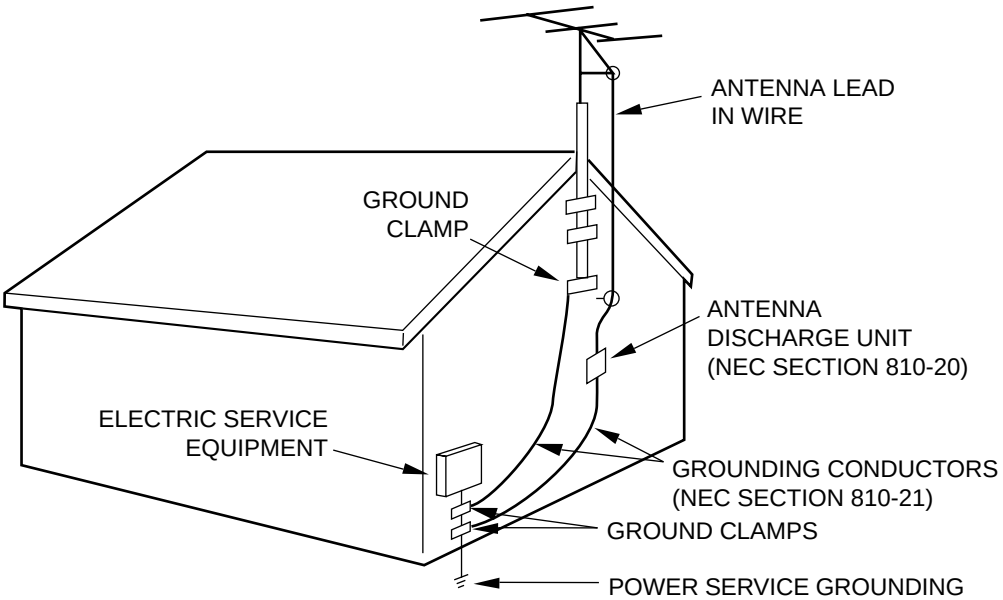
30. DISC

Do not use a cracked, deformed, or repaired disc. These discs are easily broken and may cause serious personal injury and product malfunction.

31. NOTE TO CATV SYSTEM INSTALLER

This reminder is provided to call the CATV system installer’s attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

EXAMPLE OF ANTENNA GROUNDING AS PER THE NATIONAL ELECTRICAL CODE



NEC-NATIONAL ELECTRICAL CODE

S2898A

WHEN REPLACING DVD DECK

[When removing the DVD Deck]

Before removing Pick Up PCB and DVD PCB connector, the short circuit the position shown in **Fig. 1** using a soldering iron. If you remove the DVD Deck with no soldering, the Laser may be damaged.

[When installing the DVD Deck]

Remove all the soldering on the short circuit position after the connection of Pick Up PCB and DVD PCB connector.

NOTE

- Before your operation, please read “PREPARATION OF SERVICING”.
- Use the Lead Free solder.
- Manual soldering conditions
  - Soldering temperature: 320 ± 20˚C
  - Soldering time: Within 3 seconds
  - Soldering combination: Sn-3.0Ag-0.5Cu
- When Soldering/Removing of solder, use the draw in equipment over the Pick Up Unit to keep the Flux smoke away from it.

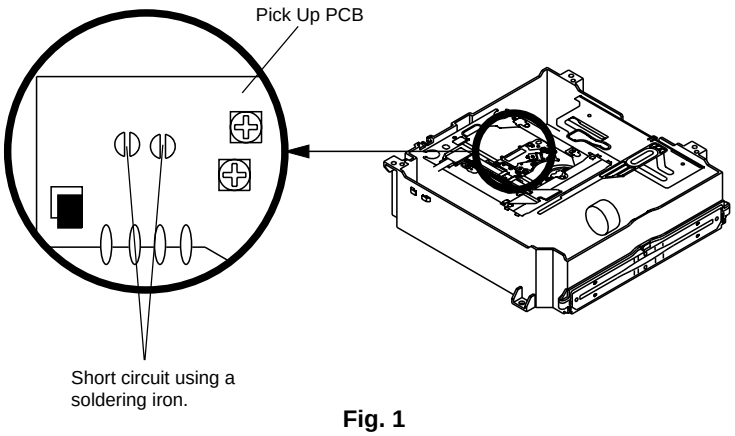


Fig. 1

DISC REMOVAL METHOD AT NO POWER SUPPLY

1. Remove the Back Cabinet. **(Refer to item 1 of the DISASSEMBLY INSTRUCTIONS.)**
2. Slide the Rack Loading toward the arrow direction by hand to release the lock. **(Refer to Fig. 1)**
3. Take out the Disc from the DVD Deck. Be careful not to scratch on the Disc.

DVD Deck

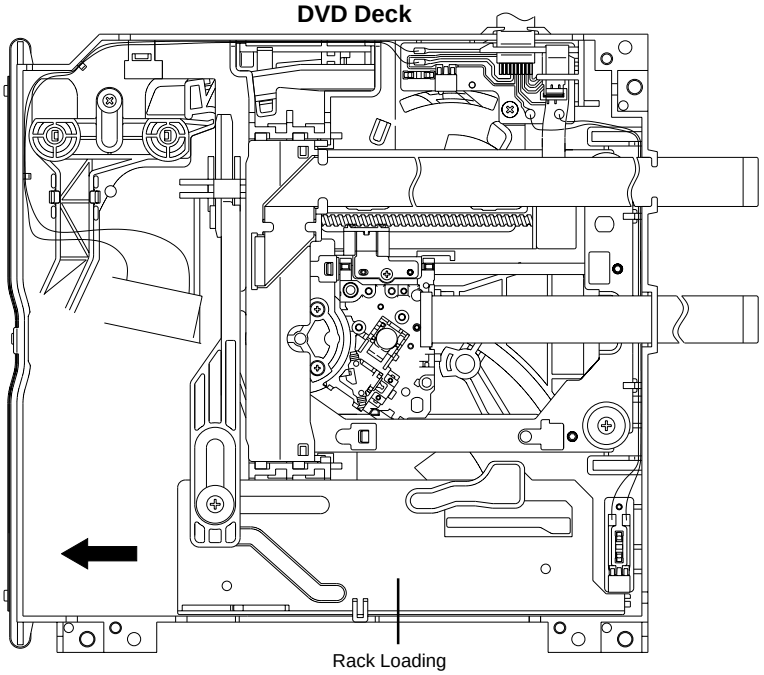


Fig. 1

PARENTAL CONTROL - RATING LEVEL
4 DIGIT PASSWORD CANCELLATION

If the stored 4 digit password in the Rating Level menu needs to be cancelled, please follow the steps below.

1. Turn Unit ON.
2. Set the DVD to the Stop Mode.
3. Check that 'No disc' is displayed on the screen.
4. Press and hold the 'STOP' button on the front panel.
5. Simultaneously press and hold the '7' key on the remote control unit.
6. Hold both keys for more than 2 seconds.
7. The On Screen Display message 'PASSWORD CLEAR' will appear.
8. The 4 digit password has now been cleared.

TRAY LOCK

The disk cannot be taken out by setting the Tray Lock, please follow the steps below.

1. Turn Unit ON.
2. Set the DVD to the Stop Mode.
3. Press and hold the ‘STOP’ key on the front panel.
4. Simultaneously press and hold the ‘9’ key on the remote control unit.
5. Hold both keys for more than 2 seconds.
6. Press the OPEN/CLOSE key on the front panel to check the Tray Lock setting.

NOTE: No indications on the screen when the Tray Lock is setting.

To unlock the Tray Lock, please follow the steps below.

1. Turn Unit ON.
2. Set the DVD to the Stop Mode.
3. Press and hold the ‘STOP’ key on the front panel.
4. Simultaneously press and hold the ‘9’ key on the remote control unit.
5. Hold both keys for more than 2 seconds.
6. The Tray Lock has now been cleared.

NOTE: No indications on the screen when the Tray Lock is setting.

It is likely to be going to be changed to the following steps without a previous notice in the future.
If the above is not effective measures, please follow the steps below.

The disk cannot be taken out by setting the Tray Lock, please follow the steps below.

1. Turn Unit ON.
2. Set the DVD to the Stop Mode.
3. Press it in order of ‘SETUP’, ‘SUBTITLE’, ‘3’, ‘AUDIO SELECT’ and ‘0’ key of a remote control unit.
4. The On Screen Display message ‘ ‘ will appear.
5. The Tray Lock has now been set up.

NOTE: No indications on the screen when the Tray Lock is setting.

To unlock the Tray Lock, please follow the steps below.

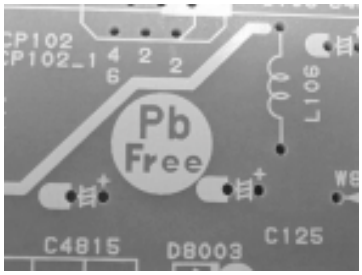
1. Turn Unit ON.
2. Set the DVD to the Stop Mode.
3. Press it in order of ‘SETUP’, ‘SUBTITLE’, ‘3’, ‘AUDIO SELECT’ and ‘0’ key of a remote control unit.
4. The On Screen Display message ‘ ‘ will appear.
5. The Tray Lock has now been cleared.

NOTE: No indications on the screen when the Tray Lock is setting.

ABOUT LEAD FREE SOLDER (PbF)

Distinction of PbF PCB:

PCBs (manufactured) using lead free solder will have a PbF printing on the PCB.
(Please refer to figures.)



Caution:

- Pb free solder has a higher melting point than standard solder;
  Typically the melting point is 50°F~70°F(30°C~40°C) higher.
  Please use a soldering iron with temperature control and adjust it to 650°F ± 20°F (350°C ± 10°C).
  In case of using high temperature soldering iron, please be carefull not to heat too long.
- Pb free solder will tend to splash when heated too high (about 1100°F/ 600°C).
- All products with the printed circuit board with PbF printing must be serviced with lead free solder.
  When soldering or unsoldering, completely remove all of the solder from the pins or solder area,
  and be sure to heat the soldering points with the lead free solder until it melts sufficiently.

Recommendations

Recommended lead free solder composition is Sn-3.0Ag-0.5Cu.

TABLE OF CONTENTS

• OWNER'S MANUAL

CAUTION A1-1
IMPORTANT SERVICE SAFETY INFORMATION A1-2
IMPORTANT SAFEGUARDS ..... A1-3~A1-5
WHEN REPLACING DVD DECK A1-6
DISC REMOVAL METHOD AT NO POWER SUPPLY A1-7
PARENTAL CONTROL - RATING LEVEL A1-7
TRAY LOCK A1-8
ABOUT LEAD FREE SOLDER (PbF) A1-9
TABLE OF CONTENTS A2-1
GENERAL SPECIFICATIONS ..... A3-1~A3-8
DISASSEMBLY INSTRUCTIONS
1. REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS ..... B1-1~B1-3
2. REMOVAL OF DVD DECK PARTS ..... B2-1~B2-3
3. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC B3-1, B3-2
SERVICE MODE LIST C-1
CONFIRMATION OF HOURS USED C-1
SERVICING FIXTURES AND TOOLS C-2
RE-WRITE FOR DVD FIRMWARE C-2
CONFIRMATION OF CHECK SUM C-3
WHEN REPLACING EEPROM (MEMORY) IC ..... C-3~C-5
ELECTRICAL ADJUSTMENTS ..... D-1~D-5
TROUBLESHOOTING GUIDE ..... E-1~E-11
BLOCK DIAGRAMS
DVD F-1, F-2
SCALER/LVDS/MICON/ADC/JACK/AV_SW/REGULATOR F-3, F-4
AV_SW/TUNER/JACK/STEREO/SOUND AMP F-5, F-6
POWER F-7, F-8
INTERFACE F-9, F-10
MICON2 ..... F-11, F-12
PRINTED CIRCUIT BOARDS
SCALER G-1, G-2
AV/OPERATION1/REMOCON ..... G-3~G-6
DVD/OPERATION2 ..... G-7, G-8
HD-MI/START SW/END SW G-9, G-10
SCHEMATIC DIAGRAMS
AV SWITCH1 ..... H-1, H-2
TUNER/JACK H-3, H-4
STEREO/SOUND H-5, H-6
POWER H-7, H-8
OPERATION1/REMOCON H-9, H-10
MICON1 ..... H-11, H-12
SCALER H-13, H-14
ADC H-15, H-16
LVDS H-17, H-18
JACK H-19, H-20
AV SWITCH2 ..... H-21, H-22
REGULATOR1 ..... H-23, H-24
MPEG/MICON/DSP H-25, H-26
MEMORY2 ..... H-27, H-28
RF AMP H-29, H-30
AUDIO/VIDEO H-31, H-32
MOTOR DRIVE H-33, H-34
REGULATOR2 ..... H-35, H-36
OPERATION2 ..... H-37, H-38
INTERFACE H-39, H-40
MICON2 ..... H-41, H-42
START SE/END SW H-43, H-44
INTERCONNECTION DIAGRAM H-45, H-46
WAVEFORMS ..... I-1~I-4
MECHANICAL EXPLODED VIEWS ..... J1-1~J1-3
DVD DECK EXPLODED VIEWS J2-1, J2-2
MECHANICAL REPLACEMENT PARTS LIST K1-1, K1-2
DVD DECK REPLACEMENT PARTS LIST K2-1
ELECTRICAL REPLACEMENT PARTS LIST ..... K3-1~K3-23

GENERAL SPECIFICATIONS

G-1	**TV System**	LCD	LCD Size / Visual Size		17.1 inch / 434.4mmV
			LCD Type		Color TFT LCD
			Number of Pixels		1280(H) x 768(V)
			View Range	Left/Right	89/89 degree
				Up/Down	89/89 degree
		Color System			NTSC
		Speaker			2 Speaker
			Position		Front
			Size		1.5 x 2.7 inch
			Impedance		16 ohm
		Sound Output	Max		1.5W + 1.5W
			10%(Typical)		---
G-2	**DVD System**	Color System			NTSC
		Disc			DVD, CD-DA, CD-R/RW, Video CD
					DVD-R/RW (Video Format Only)
		Disc Diameter			120 mm , 80 mm(with Disc Adapter)
		Drive			DSM-1
		Search speed	Fwd		4 step
				Actual	2-45 times (DVD, VIDEO CD)
					4-40 times (CD)
			Rev		4 step
				Actual	2-45 times (DVD, VIDEO CD)
					4-40 times (CD)
		Slow speed	Fwd		1/7 -1/2 times
				Actual	--
			Rev		1/7 -1/2 times
				Actual	--
G-3	**Tuning System**	Broadcasting System			US System M
		Tuner and Receive CH	System		1Tuner
			Destination		US (W/CABLE)
			CH Coverage		2~69, 4A, A-5~A-1, A~I, J~W, W+1~W+84
		Intermediate Frequency	Picture(FP)		45.75MHz
			Sound(FS)		41.25MHz
			FP-FS		4.50MHz
		Preset CH			No
		Stereo/Dual TV Sound			US-Stereo
		Tuner Sound Muting			Yes
G-4	**Signal**	Video Signal	Input Level		1 V p-p/75 ohm
			Output Level		--
			S/N Ratio (Weighted)		--
			Horizontal Resolution at DVD Mode		--
					--
		RGB Signal	Output Level		--
		Audio Signal	Input Level		-8.0dBm/50k ohm
			Output Level	at DVD	--
				at TV	--
			Digital Output Level		0.5 V p-p/75 ohm
			S/N Ratio at DVD (Weighted)		--
			Harmonic Distortion		--
			Frequency Response :	at DVD	--
				at Video CD	--
				at SVCD	--
				at CD	--
G-5	**Power**	Power Source	AC		120V, 60Hz
			DC		--
		Power Consumption		at AC	63W at 120V 60Hz
				at DC	--
			Stand by (at AC)		1W at 120V 60Hz
			Energy Star		Yes
			Per Year		-- kWh/Year
		Protector	Power Fuse		Yes
			Safety Circuit		Yes
			IC Protector(Micro Fuse)		Yes
G-6	**Regulation**		Safety		UL
			Radiation		FCC
			Laser		DHHS
G-7	**Temperature**		Operation		+5oC ~ +40oC
			Storage		-20oC ~ +60oC
G-8	**Operating Humidity**				Less than 80% RH

GENERAL SPECIFICATIONS

G-9	**On Screen Display**	Menu (TV)		Yes	
		Menu Type		Icon	
		Picture		Yes	
			Mode(Picture preference)	Yes	
			Brightness	Yes	
			Contrast	Yes	
			Color	Yes	
			Tint	Yes	
			Sharpness	Yes	
			Cable Clear	Yes	
			Color Temperature	Yes	
			Reset	Yes	
		Audio		Yes	
			MTS	Yes	
			Bass	Yes	
			Treble	Yes	
			Balance	Yes	
			Stable Sound	Yes	
			Speakers On/Off		No
			Dolby Virtual		No
			WOW SRS 3D	Yes	
			WOW Focus	Yes	
			WOW Tru Bass	Yes	
			HDMI	Yes	
			Reset	Yes	
		Setup		Yes	
			Language	Yes	
			Clock Set	Yes	
			TV/CABLE	Yes	
			CH Program	Yes	
			Add/ Erase	Yes	
			Closed Caption	Yes	
			Picture Size	Yes	
			Picture Scroll		No
			Cinema Mode	Yes	
			Aspect	Yes	
			Back Lighting	Yes	
		Option		Yes	
			On Timer	Yes	
			Favorite CH	Yes	
			CH Label	Yes	
			VIDEO Label	Yes	
		Locks		Yes	
			V-Chip Set	Yes	
			CH Lock	Yes	
			Video Lock	Yes	
			Game Timer	Yes	
			Panel Lock	Yes	
			New Password	Yes	
		PC Monitor Picture Menu		Yes	
			Brightness	Yes	
			Contrast	Yes	
			Hor Position	Yes	
			Ver Position	Yes	
			Phase	Yes	
			Clock	Yes	
			Auto Adjust		No
			Red	Yes	
			Green	Yes	
			Blue	Yes	
			WXGA INPUT	Yes	
			Reset	Yes	
		PC Monitor Audio Menu		Yes	
			Bass	Yes	
			Treble	Yes	
			Balance	Yes	
			Stable Sound	Yes	
			WOW SRS 3D	Yes	
			WOW Focus	Yes	
			WOW Tru Bass	Yes	
			Reset	Yes	

GENERAL SPECIFICATIONS

	Control Level			Yes
			Volume	Yes
			Brightness	Yes
			Contrast	Yes
			Color	Yes
			Tint	Yes
			Sharpness	Yes
			Bass	Yes
			Treble	Yes
			Balance	Yes
			Picture Scroll	No
			Back Lighting	Yes
			H Position	Yes
			V Position	Yes
			Phase	Yes
			Clock	Yes
			Red	Yes
			Green	Yes
			Blue	Yes
		Stereo, SAP, Mono		Yes
		CH / AV(Line) / DVD / PC		Yes
		Color Stream HD (Component)		Yes
		HDMI		Yes
		Channel (TV/Cable)		Yes
		CH Label		Yes
		Video Label		Yes
		Clock		Yes
		Game Timer		Yes
		Panel Lock		Yes
		On Timer		Yes
		Sleep Timer		Yes
		Reset		Yes
		Sound Mute		Yes
		V-chip Rating		Yes
		NOT AVAILABLE		Yes
		Picture Size		Yes

GENERAL SPECIFICATIONS

G-10	**On Screen Display**	Menu (DVD)			Yes
			Menu Type		Character
			Language		Yes
				Menu	Yes
				Subtitle	Yes
				Audio	Yes
			Picture		Yes
				TV Screen Size(4:3, 16:9)	Yes
				OSD Display On/Off	Yes
				JPEG Interval	Yes
				Select Files	Yes
			Sound		Yes
				DRC (Dynamic Range Control)	Yes
				dts Decode	No
				Output(5.1ch/ 2ch)	No
				Surround On/Off	No
				Center On/Off	No
				Sub Woofer On/Off	No
			Parental		Yes
				Password Lock/ Un Lock	Yes
				Rating Level	Yes
			Other		Yes
				OSD Language(Set up Language)	Yes
				Output(RGB/Composite)	No
			Eject		Yes
			No disc		Yes
			Reading		Yes
			Play		Yes
			Still/Pause		Yes
			Stop		Yes
			Prohibit Mark		Yes
			Step		Yes
			Skip(>>|)		Yes
			Skip(|<<)		Yes
			Random		Yes (CD, VIDEO CD, MP3, WMA, JPEG)
			Repeat		Yes
			Slow+		Yes
			Slow-		Yes
			Search+		Yes
			Search-		Yes
			Jump		Yes
			Resume		Yes
			Title No.		Yes
			Chapter No.		Yes
			Track No.		Yes
			Time		Yes
			Subtitle No.		Yes
			Angle No.		Yes
			Vocal On/Off		Yes
			Audio No.		Yes
			Audio L/R		Yes (Video CD)
			Zoom		Yes
			Marker No.		Yes
			Program Play Back		Yes (CD, VIDEO CD, MP3, WMA, JPEG)
			Surround On/Off		No
			Screen Saver		No
			MP3/WMA/JPEG	Folder Name	Yes
				File Name	Yes
				File No	Yes
				Time	Yes (MP3, WMA Only)
				Track No	Yes
G-11	**OSD Language**	(TV)			English, French, Spanish
		(DVD)			English, French, Spanish
G-12	**Clock and Timer**	Sleep Timer	Max Time		120 Min
			Step		10 Min
		On Timer	Program		Yes
		Wake Up Timer			No
		Timer Back-up (at Power Off Mode)		more than	-- Min Sec

GENERAL SPECIFICATIONS

G-13	**Remote Control**	Unit		RC-LT
		Glow in Dark Remocon		Yes
		Remocon Format		TOSHIBA
		Format		TOSHIBA
		Custom Code		40-BF h ,44-BB h ,45-BA h ,45-BC h
		Power Source	Voltage(D.C)	3V
			UM size x pcs	UM-4 x 2 pcs
		Total Keys		49 Keys
		Keys	Power	Yes
			EJECT	Yes
			SLEEP	Yes
			TV/DVD	Yes
			1	Yes
			2	Yes
			3	Yes
			4	Yes
			5	Yes
			6	Yes
			7	Yes
			8	Yes
			9	Yes
			0	Yes
			100 / JUMP	Yes
			DISPLAY	Yes
			SUBTITLE	Yes
			AUDIO SELECT	Yes
			INPUT / ZOOM	Yes
			MUTE	Yes
			CH +	Yes
			CH -	Yes
			VOL +	Yes
			VOL -	Yes
			PLAY MODE	Yes
			DVD MENU	Yes
			UP	Yes
			LEFT / FAV -	Yes
			ENTER	Yes
			RIGHT / FAV +	Yes
			DOWN	Yes
			TV MENU/SETUP	Yes
			EXIT / CANCEL	Yes
			GAME	Yes
			PIC SIZE	Yes
			PAUSE	Yes
			PLAY	Yes
			STOP	Yes
			CH RTN /<SKIP	Yes
			SEARCH -	Yes
			SEARCH +	Yes
			Closed Caption / SKIP>	Yes
			< SLOW	Yes
			ANGLE	Yes
			Marker	Yes
			SLOW >	Yes
			TOP MENU	Yes
			RETURN	Yes
			REPEAT A-B	Yes

GENERAL SPECIFICATIONS

G-14	**Features (TV)**	Auto Shut Off		Yes
		Auto Search		No
		Comb Filter		Yes 3 -D
		Game Position		Yes
		Power On Memory		Yes
		Variable Audio Out		No
		Mode (Picture Preference)		Yes
		Color Temparature Control		Yes
		Cable Clear		Yes
		SAP		Yes
		Stable Sound		Yes
		Virtual Dolby		No
		SRS WOW(SRS 3D/Focus/Tru Bass)		Yes
		CABLE		Yes
		CH Program (Auto CH Memory)		Yes
		Closed Caption		Yes
		Picture Size		Yes
		Picture Scroll		No
		Cinema Mode		Yes
		Aspect		Yes
		On Timer		Yes
		Sleep Timer		Yes
		Favorite CH		Yes
		CH Label		Yes
		VIDEO Label		Yes
		V-Chip Type		Yes USA Type
		CH Lock		Yes
		Video Lock		Yes
		Game Timer(Max Time:120Min)		Yes
		Panel Lock		Yes
		Direct Input Selection		Yes
		PC Monitor Input		Yes
		Available Scan Rates	(Component/HDMI)	480i/480p/720p/1080i
		Auto Setup(Language/CH Program)		Yes
		Freeze frame		No
	Features (DVD)	Tray Lock		Yes
		Video CD Playback		Yes
		MP3 Playback		Yes
		JPEG		Yes
		WMA		Yes
		Digital Out	(Dolby Digital)	Yes
			(MPEG)	Yes
			(PCM)	Yes
			(DTS)	Yes
		Down Mix Out	(Dolby Digital)	Yes
			(DTS)	No
		Screen Saver		No
		Audio DAC		192kHz / 24bit

GENERAL SPECIFICATIONS

G-15	**Accessories**	Owner's Manual		Language	English/French
				w/Guarantee Card	Yes
		Remote Control Unit			Yes
		Rod Antenna			No
				Poles	--
				Terminal	--
		Loop Antenna			No
				Terminal	--
		U/V Mixer			No
		DC Car Cord (Center+)			No
		Guarantee Card			No
		Warning Sheet			No
		Circuit Diagram			No
		Antenna Change Plug			No
		Service Facility List			No
		Important Safeguard			No
		Dew/AHC Caution Sheet			No
		Quick Set-up Sheet			No
		Battery			Yes
				UM size x pcs	UM-4 x 2 pcs
				OEM Brand	No
		AC Adapter			Yes
		AC Cord (for AC Adapter)			Yes
		AV Cord (2Pin-1Pin)			No
		Registration Card (NDL Card)			Yes
		300ohm to 75ohm Antenna Adapter			No
		Sheet Information (Return)			Yes
		Sheet Information (HDMI)			No
		Screw for wall hanging			No
G-16	**Interface**	Switch	Top	Power (Tact)	Yes
				Channel Up/Menu Up	Yes
				Channel Down/Menu Down	Yes
				Volume Up/Menu >	Yes
				Volume Down/Menu <	Yes
				Menu	Yes
				Play	Yes
				Eject	Yes
				Skip+, Search+	Yes
				Skip-, Search-	Yes
				Still/Pause	No
				Stop	Yes
				Main Power SW	No
				Input Select	Yes
		Indicator		Power	Yes (Red)
				Stand-by	No
				On Timer	No
		Terminals	Rear	Video Input 1	RCA x 1
				Audio Input 1	RCA x 2(Stereo)
				S - Input 1	Yes
				Video Output	No
				Audio Output	No
				Component Input(w/ Analog Audio L/R)	RCA x 5
				HDMI Input(w/ Analog Audio L/R)	HDMI x 1(RCA x 2)
				PC Monitor Input(w/ Analog Audio L/R)	No
				Digital Audio Output	Coaxial (DVD Only)
				DC Jack (Center +)	Yes
				VHF/UHF Antenna Input	F Type
				AC Outlet	No
			Side	Video Input 2	RCA x 1
				Audio Input 2	RCA x 2(Stereo)
				PC Monitor Input(w/ Analog Audio L/R)	Dsub15pin x 1(RCA x 2)
				Other Terminal	Headphone
G-17	**Set Size**			Approx. W x D x H (mm)	456 x 220 x 409
				w/o Handle, Stand Approx. W x D x H (mm)	456 x 102 x 365
G-18	**Weight**			Net (Approx.)	8.0kg (17.6 lbs)
				Net w/o Handle, Stand (Approx.)	6.5kg (14.3 lbs)
				Gross (Approx.)	10.5kg (23.1 lbs)

GENERAL SPECIFICATIONS

G-19	**Carton**	Master Carton		No
			Content	--- Sets
			Material	--- / ---
			Dimensions W x D x H(mm)	---
			Description of Origin	---
		Gift Box	Material	Double/Brown
			W/Color Photo Label	No
			W/Handle	No
			Dimensions W x D x H(mm)	552 x 328 x 512
			Description of Origin	No(Assembled In Thailand)
		Drop Test		1 Corner / 3 Edges / 6 Surfaces
			Height (cm)	62
		Container Stuffing (40' container)		604 Sets
G-20	**Material**	Cabinet	Front	PS 94V0 DECABROM
			Rear	PS 94V0 DECABROM
		PCB	Non-Halogen Demand	No
			Eyelet Demand	No
G-21	**Environment**	Green PROCUREMENT of TOSHIBA		Still not accomplished
		Pb-Free		Phase 3 (Phase 3A)
G-22	**AC Power Adapter**			Provided Accessories
		Power Requirement	AC	120V 60Hz
		Max Power Consumption(Adapter Only)	at AC	65 W
		DC Output		DC Jack : DC12V 4.5A
		Dimension	Approx. W x D x H (mm)	150 x 72 x 43
		Weight	Approx.	450g

DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS

1-1: HANDLE/BACK COVER ASS'Y (Refer to Fig. 1-1)

1. Remove the 4 screws ①.
2. Remove the Handle in the direction of arrow (A).
3. Unlock the 6 supports ②.
4. Remove the Back Cover in the direction of arrow (B).

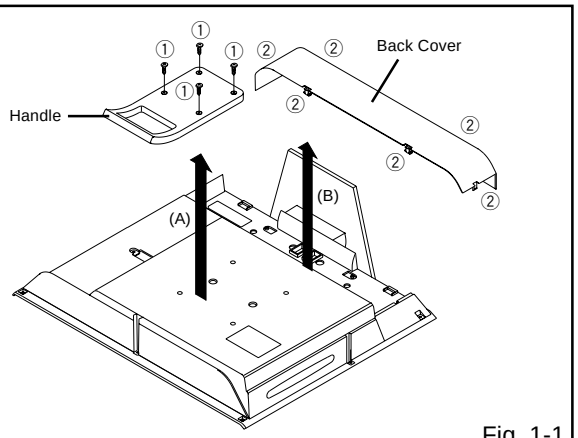


Fig. 1-1

1-2: HINGE ASS'Y (Refer to Fig. 1-2)

1. Remove the 3 screws ①.
2. Remove the Stand in the direction of arrow (A).
3. Remove the 8 screws ②.
4. Remove the Stand Angle in the direction of arrow (B).
5. Remove the 4 screws ③.
6. Remove the Hinge Ass'y in the direction of arrow (C).

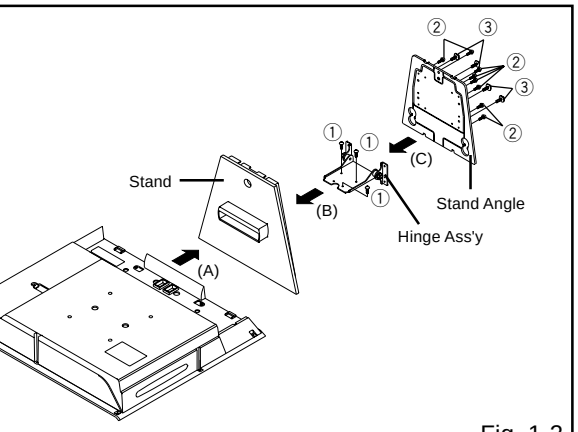


Fig. 1-2

1-3: BACK CABINET (Refer to Fig. 1-3)

1. Remove the 9 screws ①.
2. Remove the Back Cabinet in the direction of arrow.

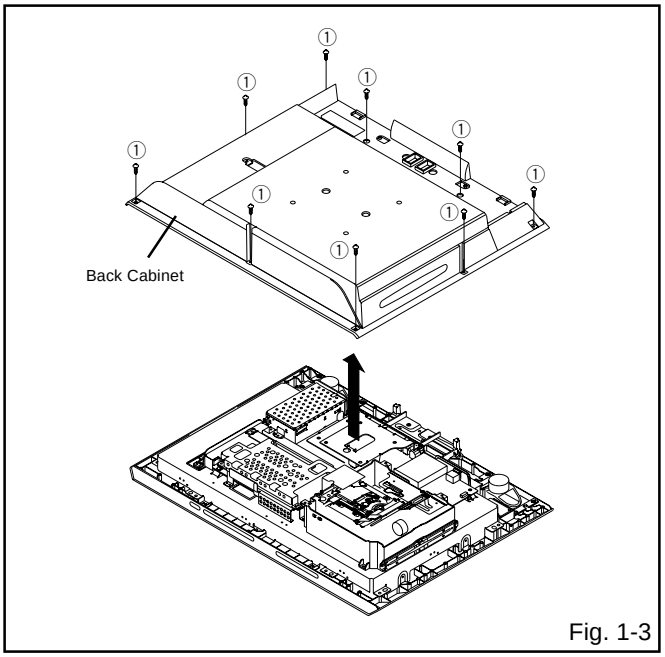


Fig. 1-3

1-4: HANDLE ANGLE (Refer to Fig. 1-4)

1. Remove the screw ①.
2. Remove the 2 screws ②.
3. Remove the Handle Angle in the direction of arrow.

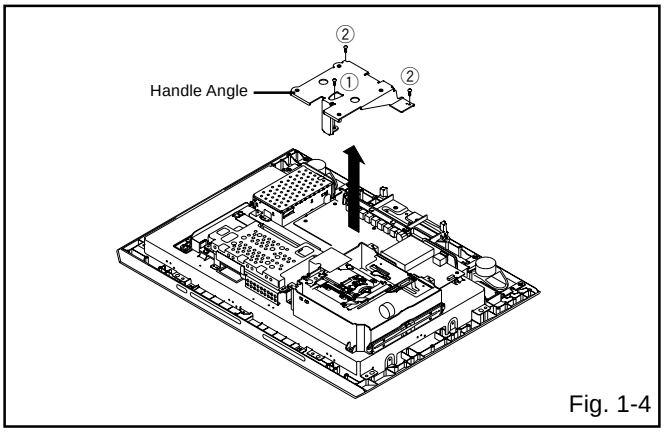


Fig. 1-4

DISASSEMBLY INSTRUCTIONS

1-5: DVD DECK (Refer to Fig. 1-5)

1. Short circuit the position shown in **Fig. 1-5** using a soldering iron. If you remove the DVD Deck with no soldering, the Laser may be damaged.
2. Disconnect the following connectors: **(CP2301, CP2302 and CP2601)**.
3. Remove the 4 screws ①.
4. Remove the DVD Deck in the direction of arrow (A).
5. Remove the 5 screws ②.
6. Remove the DVD Angle in the direction of arrow (B).

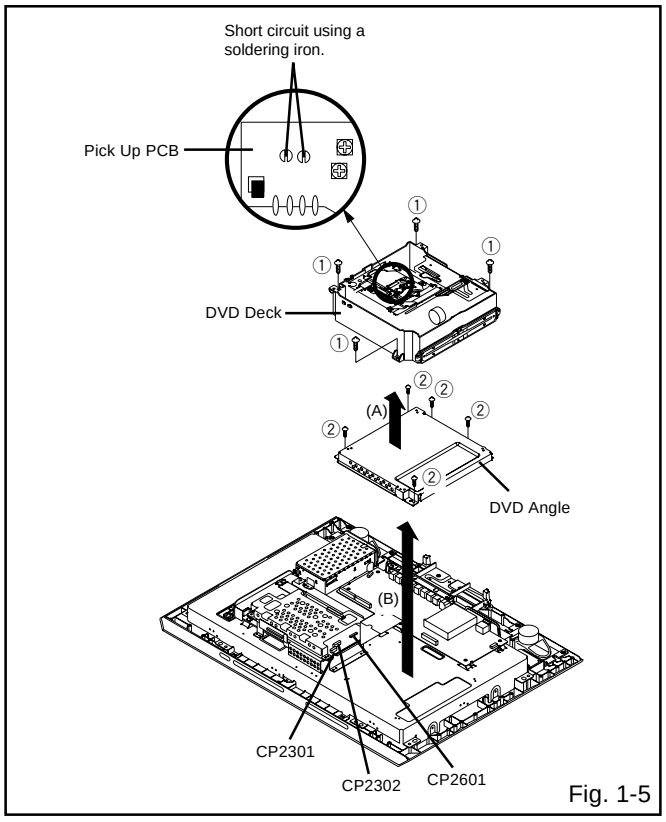


Fig. 1-5

NOTE

1. Before your operation, please read “PREPARATION OF SERVICING”.
2. Use the Lead Free solder.
3. Manual soldering conditions
   - Soldering temperature: 320 ± 20˚C
   - Soldering time: Within 3 seconds
   - Soldering combination: Sn-3.0Ag-0.5Cu
4. When Soldering/Removing of solder, use the drawing equipment over the Pick Up Unit to keep the Flux smoke away from it.
5. When installing the DVD Deck, remove all the soldering on the short circuit position after the connection of Pick Up PCB and DVD PCB connector.

1-6: DVD PCB (Refer to Fig. 1-6)

1. Disconnect the following connectors: **(CP3802 and CP4303)**.
2. Remove the 4 screws ①.
3. Remove the DVD PCB and Shield FFC in the direction of arrow.

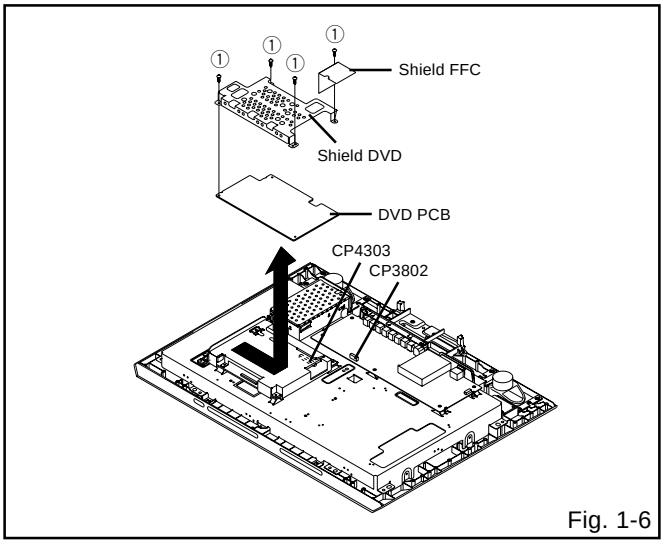


Fig. 1-6

1-7: SCALER PCB (Refer to Fig. 1-7)

1. Remove the 4 screws ①.
2. Remove the Angle PCB in the direction of arrow (A).
3. Remove the 2 screws ②.
4. Remove the Side Jack Plate in the direction of arrow (B).
5. Remove the 4 screws ②.
6. Disconnect the following connectors: **(CP801, CP802, CP2200, CP3201, CP4301 and CP7201)**.
7. Remove the Shield LCD and Scaler PCB in the direction of arrow (C).

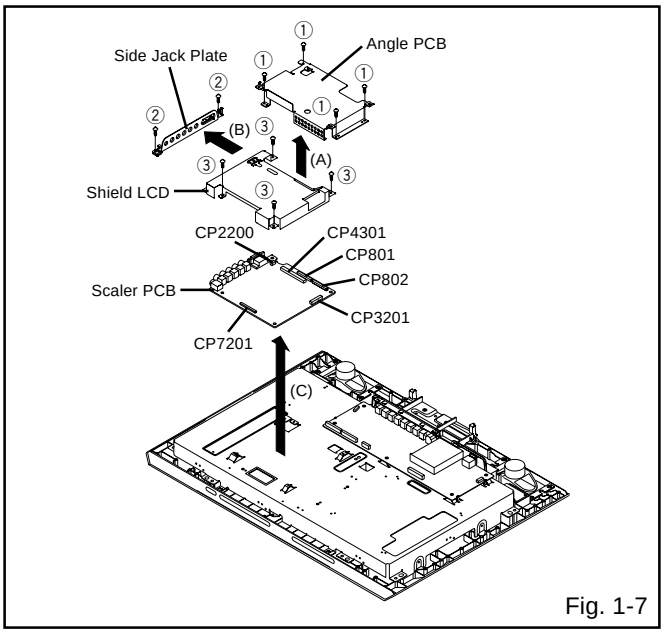


Fig. 1-7

1-8: HD-MI PCB (Refer to Fig. 1-8)

1. Remove the screw ①.
2. Remove the 2 screws ②.
3. Remove the Jack Plate in the direction of arrow (A).
4. Remove the 3 screws ③.
5. Remove the HD-MI PCB in the direction of arrow (B).

DISASSEMBLY INSTRUCTIONS

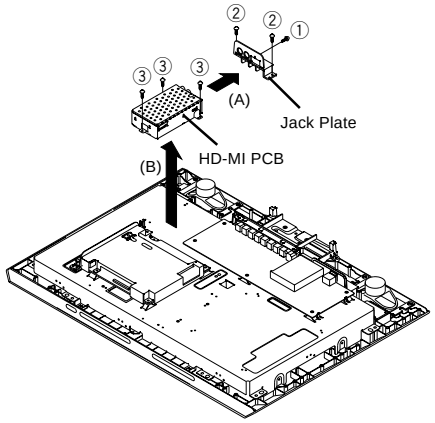


Fig. 1-8

1-9: AV PCB (Refer to Fig. 1-9)

1. Disconnect the following connectors:
   (CP301, CP3803 and CP5002).
2. Remove the screw ①.
3. Remove the 2 screws ②.
4. Remove the screw ③.
5. Remove the Jack Plate 1 and Jack Shield 1 in the direction of arrow (A).
6. Remove the 2 screws ④.
7. Remove the 2 screws ⑤.
8. Remove the Jack Plate 2 and Jack Shield 2 in the direction of arrow (B).
9. Remove the 5 screws ⑥.
5. Remove the AV PCB in the direction of arrow (C).

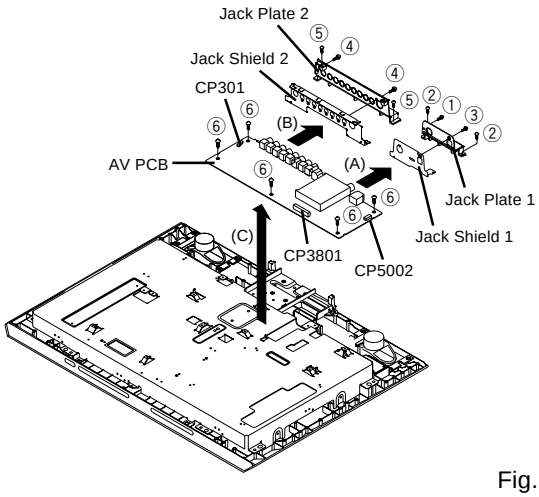


Fig. 1-9

1-10: OPERATION 1/2 PCB/REMOCON PCB (Refer to Fig. 1-10)

1. Remove the 4 screws ①.
2. Remove the Operation 1/2 PCB in the direction of arrow (A).
3. Remove the 2 screws ①.
4. Remove the Remocon PCB in the direction of arrow (B).

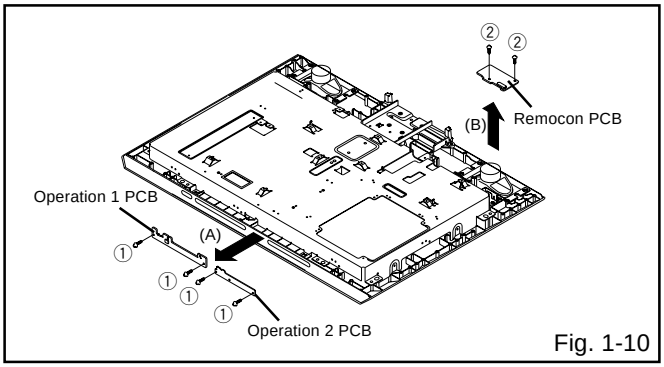


Fig. 1-10

1-11: LCD COVER/LCD PANEL (Refer to Fig. 1-11)

1. Remove the 3 screws ①.
2. Remove the screw ②.
3. Remove the 2 screws ③.
4. Remove the Angle Hinge in the direction of arrow (A).
5. Remove the 6 screws ④.
6. Remove the LCD Cover in the direction of arrow (B).
7. Disconnect the following connector:
   (CP2251).
8. Remove the 4 screws ⑤.
9. Remove the LCD Panel in the direction of arrow (D).

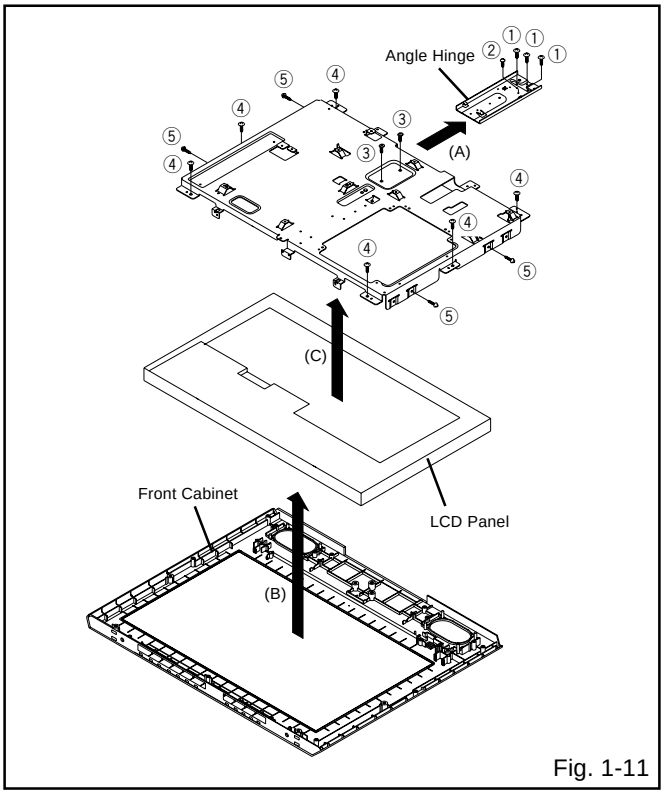


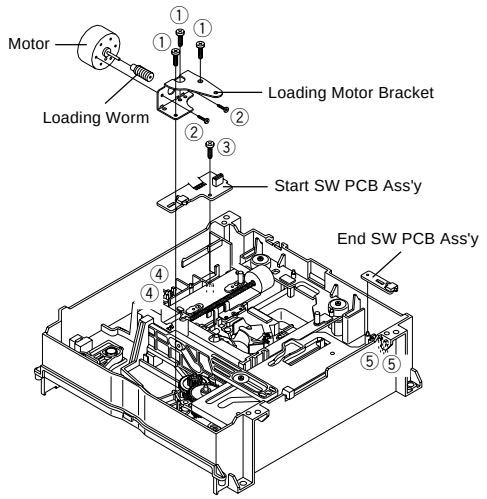
Fig. 1-11

DISASSEMBLY INSTRUCTIONS

2. REMOVAL OF DVD DECK PARTS

2-1: LOADING MOTOR ASS'Y/START SW PCB ASS'Y/ END SW PCB ASS'Y (Refer to Fig. 2-1-A)

1. Remove the 3 screws ①.
2. Remove the Loading Motor Ass'y.
3. Remove the 2 screws ②.
4. Remove the Motor and Loading Worm.
5. Disconnect the following connector: (CP2).
6. Remove the screw ③.
7. Unlock the 2 supports ④ and remove the Start SW PCB Ass'y.
8. Unlock the 2 supports ⑤ and remove the End SW PCB Ass'y.



• Screw Torque: 1 ± 0.2kgf•cm

Fig. 2-1-A

NOTE

1. In case of the Loading Worm installation, check if the value of the Fig. 2-1-B is correct.
2. When installing the wire, install it correctly as Fig. 2-1-B.

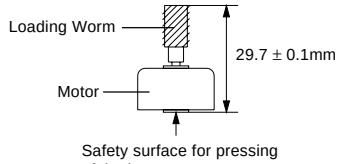


Fig. 2-1-B

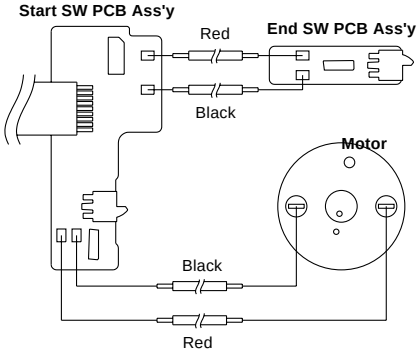
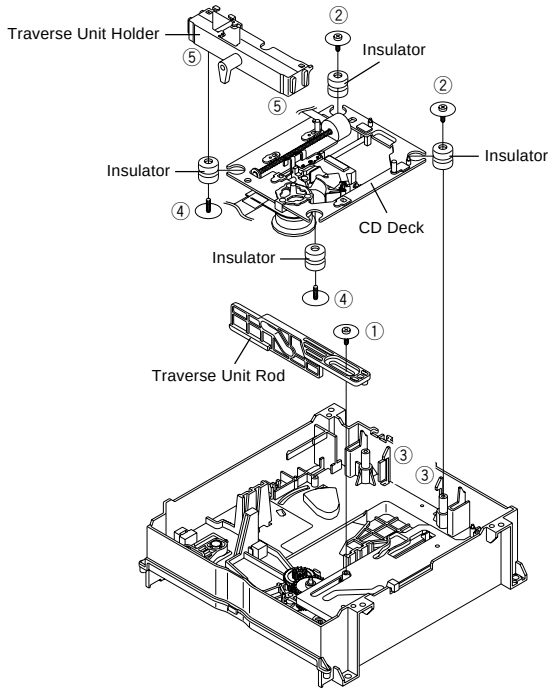


Fig. 2-1-C

2-2: TRAVERSE UNIT ROD/TRAVERSE UNIT HOLDER/ CD DECK/INSULATOR (Refer to Fig. 2-2)

1. Remove the screw ①.
2. Remove the Traverse Unit Rod.
3. Remove the 2 screws ③.
4. Unlock the 2 supports ④ and remove the CD Deck Block.
5. Remove the 2 screws ⑤.
6. Unlock the 2 supports ⑥ and remove the Traverse Unit Holder.
7. Remove the 4 Insulators.

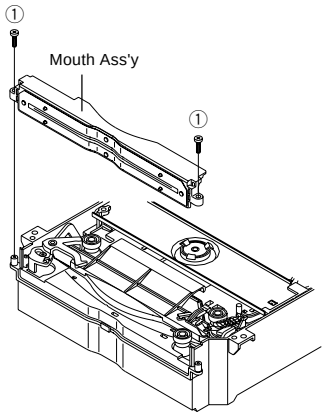


• Screw Torque: 3 ± 0.5kgf•cm

Fig. 2-2

2-3: MOUTH ASS'Y (Refer to Fig. 2-3)

1. Remove the 2 screws ①.
2. Remove the Mouth Ass'y.



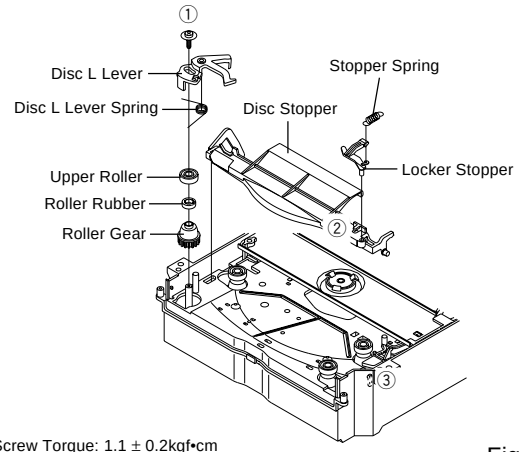
• Screw Torque: 0.8 ± 0.2kgf•cm

Fig. 2-3

DISASSEMBLY INSTRUCTIONS

2-4: DISC L LEVER/DISC STOPPER/LOCKER STOPPER/ ROLLER GEAR (Refer to Fig. 2-4-A)

1. Remove the screw ①.
2. Remove the Disc L Lever and Disc L Lever Spring.
3. Remove the Stopper Spring.
4. Unlock the support ② and remove the Locker Stopper.
5. Unlock the support ③ and remove the Disc Stopper.
6. Remove the Upper Roller, Roller Rubber and Roller Gear.



• Screw Torque: 1.1 ± 0.2kgf•cm

Fig. 2-4-A

NOTE

1. In case of the Upper Roller installation, install correctly as Fig. 2-4-B.

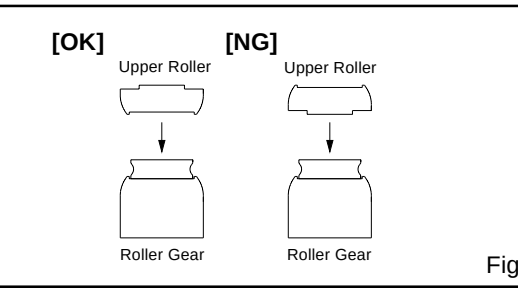


Fig. 2-4-B

2-5: RACK LOADING/RACK GEAR/GUIDE ARM SPRING/MID RACK GEAR (Refer to Fig. 2-5)

1. Remove the Guide Arm Spring.
2. Unlock the 3 supports ① and remove the Rack Loading.
3. Remove the Rack Gear and Mid Rack Gear.

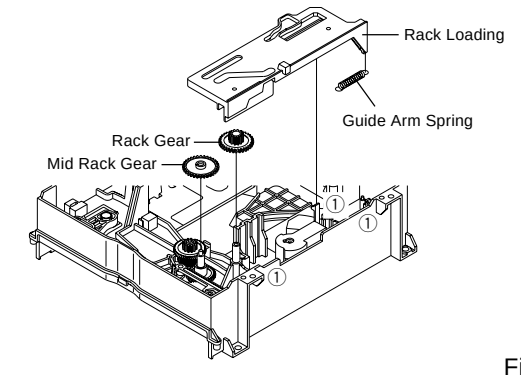
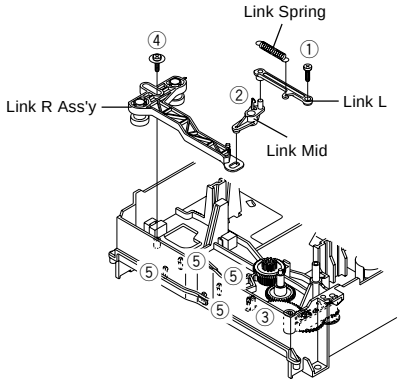


Fig. 2-5

2-6: LINK R ASS'Y/LINK L/LINK MID/LINK SPRING (Refer to Fig. 2-6)

1. Remove the screw ①.
2. Remove the Link Spring.
3. Unlock the support ② and remove the Link L.
4. Unlock the support ③ and remove the Link Mid.
5. Remove the screw ④.
6. Unlock the 4 supports ⑤ and remove the Link R Ass'y.

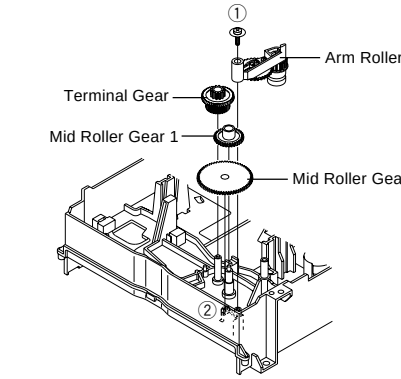


• Screw Torque: 0.7 ± 0.1kgf•cm (Screw ①)
• Screw Torque: 1.5 ± 0.2kgf•cm (Screw ④)

Fig. 2-6

2-7: ARM ROLLER ASS'Y/MID ROLLER 1/2 GEAR/ TERMINAL GEAR (Refer to Fig. 2-7)

1. Remove the screw ①.
2. Remove the Arm Roller Ass'y.
3. Remove the Terminal Gear and Mid Roller Gear 1.
4. Unlock the support ② and remove the Mid Roller Gear 2.



• Screw Torque: 1.5 ± 0.2kgf•cm

Fig. 2-7

DISASSEMBLY INSTRUCTIONS

2-8: CLAMPER ASS'Y/DISC GUIDE ARM/DISC R LEVER (Refer to Fig. 2-8-A)

1. Unlock the support ① and remove the Clamper Ass'y.
2. Unlock the support ② and remove the Disc Guide Arm.
3. Unlock the support ③ and remove the Disc R Lever.

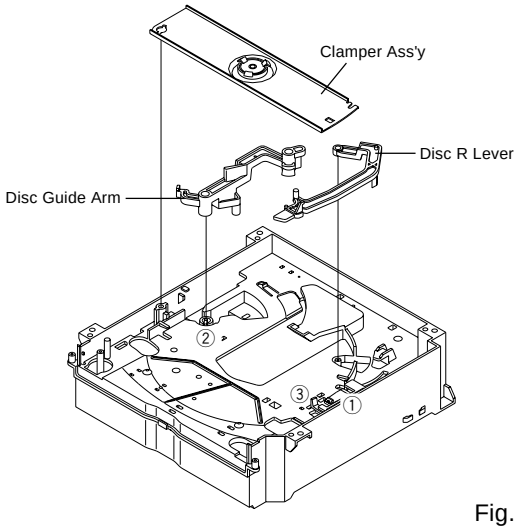


Fig. 2-8-A

NOTE

1. When installing the Clamper Ass'y, check if the Clamper Ass'y is locked correctly as Fig. 2-8-B.

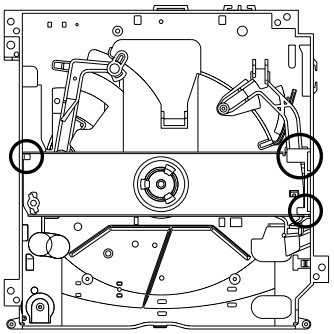


Fig. 2-8-B

DISASSEMBLY INSTRUCTIONS

3. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

REMOVAL

1. Put the Masking Tape (cotton tape) around the Flat Package IC to protect other parts from any damage. **(Refer to Fig. 3-1.)**

   NOTE

   Masking is carried out on all the parts located within 10 mm distance from IC leads.

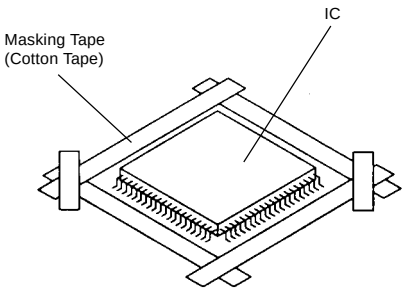


Fig. 3-1

2. Heat the IC leads using a blower type IC desoldering machine. **(Refer to Fig. 3-2.)**

   NOTE

   Do not add the rotating and the back and forth directions force on the IC, until IC can move back and forth easily after desoldering the IC leads completely.

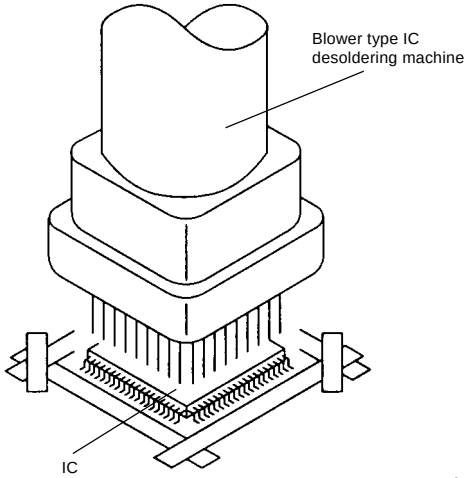


Fig. 3-2

3. When IC starts moving back and forth easily after desoldering completely, pickup the corner of the IC using a tweezers and remove the IC by moving with the IC desoldering machine. **(Refer to Fig. 3-3.)**

   NOTE

   Some ICs on the PCB are affixed with glue, so be careful not to break or damage the foil of each IC leads or solder lands under the IC when removing it.

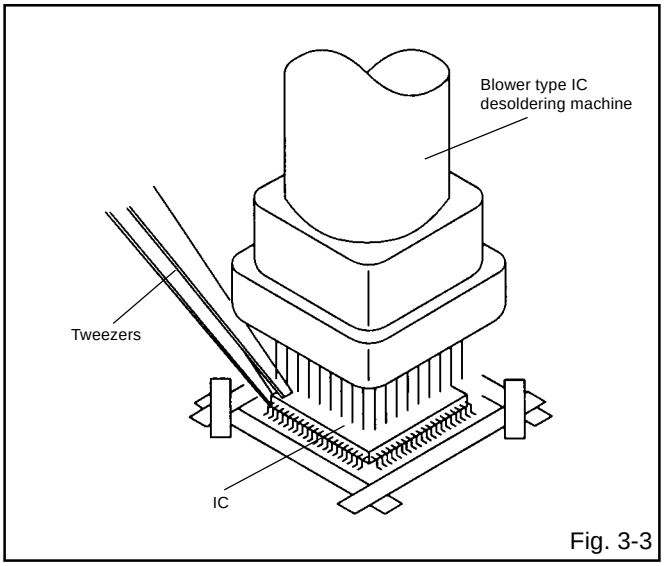


Fig. 3-3

4. Peel off the Masking Tape.
5. Absorb the solder left on the pattern using the Braided Shield Wire. **(Refer to Fig. 3-4.)**

   NOTE

   Do not move the Braided Shield Wire in the vertical direction towards the IC pattern.

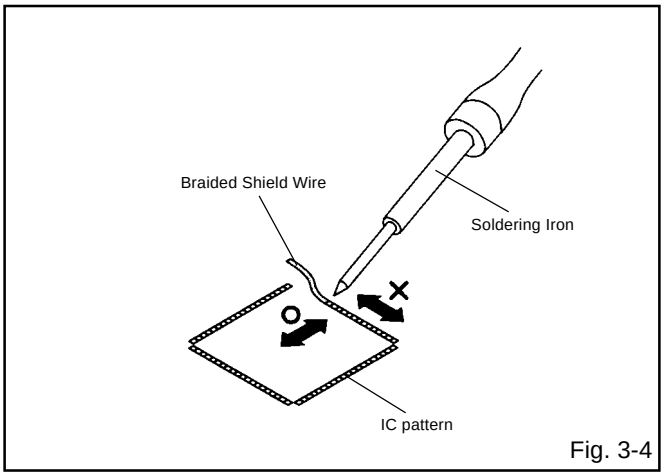


Fig. 3-4

DISASSEMBLY INSTRUCTIONS

INSTALLATION

1. Take care of the polarity of new IC and then install the new IC fitting on the printed circuit pattern. Then solder each lead on the diagonal positions of IC temporarily. **(Refer to Fig. 3-5.)**

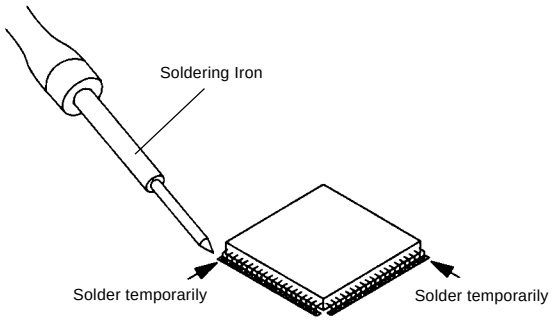


Fig. 3-5

2. Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. **(Refer to Fig. 3-6.)**

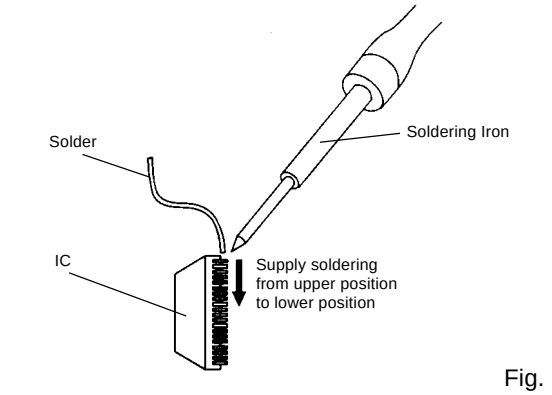


Fig. 3-6

3. Absorb the solder left on the lead using the Braided Shield Wire. **(Refer to Fig. 3-7.)**

   NOTE

   Do not absorb the solder to excess.

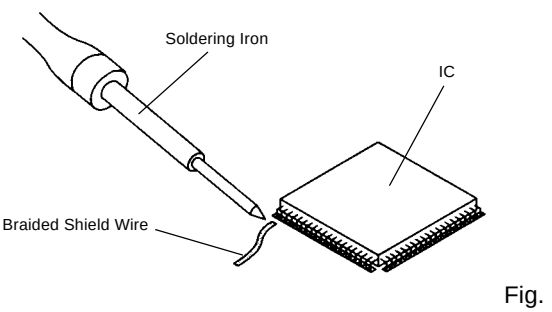


Fig. 3-7

4. When bridge-soldering between terminals and/or the soldering amount are not enough, resolder using a Thin-tip Soldering Iron. **(Refer to Fig. 3-8.)**

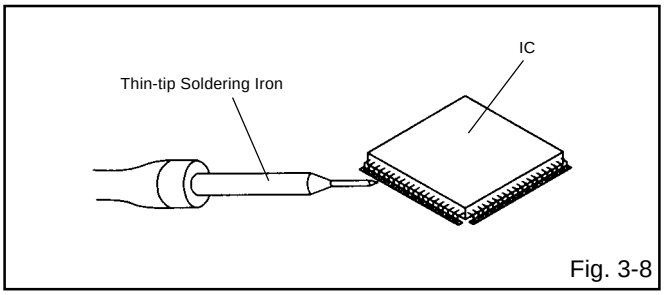


Fig. 3-8

5. Finally, confirm the soldering status on four sides of the IC using a magnifying glass.
   Confirm that no abnormality is found on the soldering position and installation position of the parts around the IC. If some abnormality is found, correct by resoldering.

   NOTE

   When the IC leads are bent during soldering and/or repairing, do not repair the bending of leads. If the bending of leads are repaired, the pattern may be damaged. So, be always sure to replace the IC in this case.

SERVICE MODE LIST

This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily.

To enter to the SERVICE MODE function, press and hold both buttons simultaneously on the main unit and on the remote control for more than a the standard time in the appropriate condition. (See below chart.)

Set Condition	Set Key	Remocon Key	Standard Time	Operations
TV mode	VOL. DOWN (Minimum)	0	2 sec.	Releasing of V-CHIP PASSWORD.
TV mode	VOL. DOWN (Minimum)	1	2 sec.	Initialization of factory TV data. NOTE: If you set factory initialization, the memories are reset such as the channel setting, and the POWER ON total hours.
DVD mode (No disc)	VOL. DOWN (Minimum)	4	2 sec.	Initialization of factory DVD data. NOTE: The function will only work without the setting of DVD disc at DVD mode.
DVD mode (No disc)	VOL. DOWN (Minimum)	5	2 sec.	DVD Write mode. Refer to the “RE-WRITE FOR DVD FIRMWARE”. NOTE: The function will only work without the setting of DVD disc at DVD mode.
TV mode	VOL. DOWN (Minimum)	6	2 sec.	POWER ON total hours are displayed on the screen. Refer to the "CONFIRMATION OF HOURS USED" . Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "WHEN REPLACING EEPROM (MEMORY) IC".
TV mode	VOL. DOWN (Minimum)	8	2 sec.	Check of the SUM DATA and MICON VERSION on the screen. Refer to the "CONFIRMATION OF HOURS USED".
ALL mode	VOL. DOWN (Minimum)	9	2 sec.	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).
DVD mode (No disc)	STOP	1	2 sec.	Region setting. Refer to the “RE-WRITE FOR DVD FIRMWARE”.
DVD mode (No disc)	STOP	7	2 sec.	Releasing of PARENTAL LOCK. Refer to the “PARENTAL CONTROL - RATING LEVEL”. NOTE: The function will only work without the setting of DVD disc at DVD mode.
DVD mode (STOP)	STOP	9	2 sec.	The disk cannot be taken out. Refer to the “TRAY LOCK”. NOTE: No indications on the screen when the Tray Lock is setting.

CONFIRMATION OF HOURS USED

POWER ON total hours can be checked on the screen. Total hours are displayed in 16 system of notation.

NOTE: If you set a factory initialization, the total hours is reset to "0".

1. Turn on the POWER, and set to the TV mode.
2. Set the VOLUME to minimum.
3. Press both VOL. DOWN button on the set and Channel button **(6)** on the remote control for more than 2 seconds.
4. After the confirmation of using hours, turn off the power.

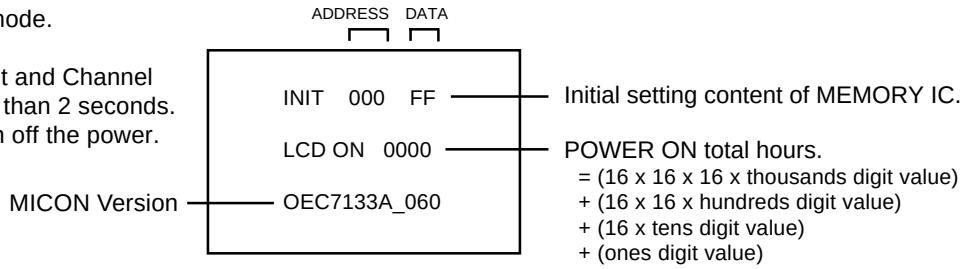
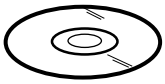

ADDRESS
DATA
INIT 000 FF
Initial setting content of MEMORY IC.
LCD ON 0000
POWER ON total hours.
= (16 x 16 x 16 x thousands digit value)
+ (16 x 16 x hundreds digit value)
+ (16 x tens digit value)
+ (ones digit value)
MICON Version
OEC7133A_060

FIG. 1

SERVICING FIXTURES AND TOOLS

JG176 Up-Date Disc



Ref. No.	Part No.	Parts Name	Remarks
JG176	APJG176076	Up-Date Disc	Up-Date of the Firmware

RE-WRITE FOR DVD FIRMWARE

1. Turn on the power, and set the DVD mode.

2. Confirm that the “No Disc” will be appeared on the screen.

3. Press both VOL. DOWN button on the set and Channel button **(5)** on the remote control for more than 2 seconds.

4. Press VOL. UP/DOWN button on the unit to check if all the keys on the unit do not function.
   NOTE: To check if DVD Write mode is set.
   When inserting Up-Date Disc at Non DVD Write mode, the read error will happen.

5. Insert the Up-Date Disc. **(Refer to SERVICING FIXTURE AND TOOLS)**

6. Automatic read will start and "Firmware upgrade Please Wait" will be displayed on the screen.
   At this time, the horizontal noise lines may appear. But no problem.
   NOTE: Do not turn off the unit on the way or operate the keys on the unit and remocon.
   Up-Date error will happen and can not be done with the Up-Date of Up-Date Disc.

7. After the Up-Date, Logo screen will appear.

8. Unplug the AC cord, then plug it in.

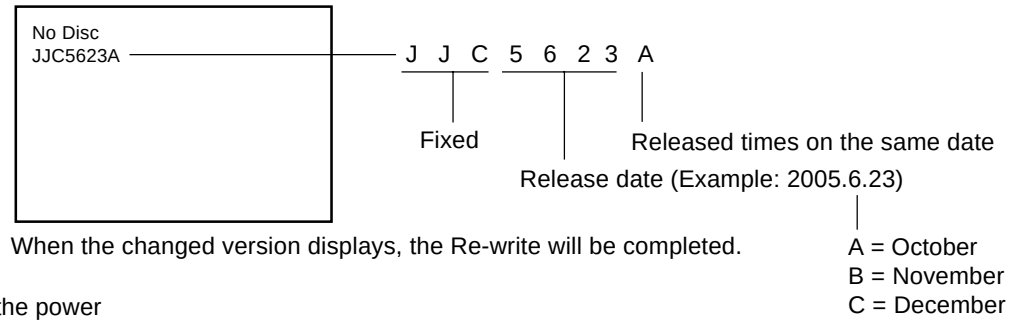
After the write, set to the initializing of shipping.

9. Turn on the power, and set the DVD mode.
10. Press both VOL. DOWN button on the set and Channel button **(4)** on the remote control for more than 2 seconds.
    The "INITIALIZE 5 ---> COMPLETE" will appear on the screen.

11. Then unplug the AC cord, and plug it in.

CHECK FOR THE FIRMWARE VERSION

12. Turn on the power, and set the DVD mode.
13. Press both Channel button **(1)** on the remote control and the STOP button on the set for more than 2 seconds.
    Firmware version will be displayed on the top left of the screen.



When the changed version displays, the Re-write will be completed.

14. Turn off the power

CONFIRMATION OF CHECK SUM

Initial total of MEMORY IC can be checked on the screen. Total hours are displayed in 16 system of notation.

NOTE: If you set a factory initialization, the total hours is reset to "0".

1. Turn on the POWER, and set to the TV mode.
2. Set the VOLUME to minimum.
   Press both VOL. DOWN button on the set and Channel
3. button **(8)** on the remote control for more than 2 seconds.
4. After the confirmation of each check sum, turn off the power.

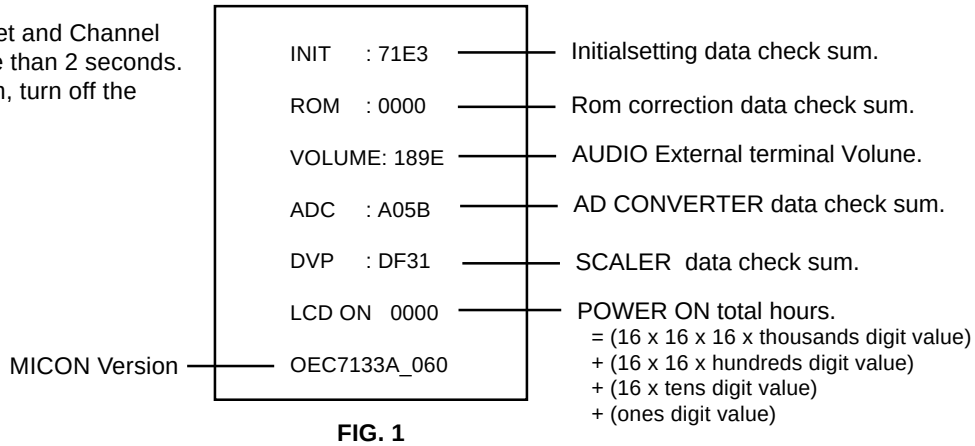

INIT : 71E3
Initialsetting data check sum.
ROM : 0000
Rom correction data check sum.
VOLUME: 189E
AUDIO External terminal Volune.
ADC : A05B
AD CONVERTER data check sum.
DVP : DF31
SCALER data check sum.
LCD ON 0000
POWER ON total hours.
= (16 x 16 x 16 x thousands digit value)
+ (16 x 16 x hundreds digit value)
+ (16 x tens digit value)
+ (ones digit value)
MICON Version
OEC7133A_060

FIG. 1

WHEN REPLACING EEPROM (MEMORY) IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

1. Turn on the POWER, and set to the TV mode.
2. Set the VOLUME to minimum.
3. Press both VOL. DOWN button on the set and Channel button **(6)** on the remote control for more than 2 seconds. ADDRESS and DATA should appear as FIG 1.

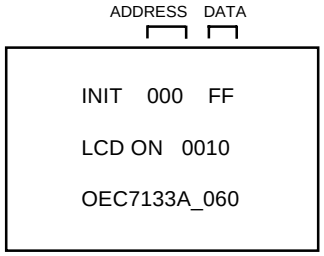


FIG. 1

4. ADDRESS is now selected and should "blink". Using the UP/DOWN buton on the remote, step through the ADDRESS until Press RIGHT/LEFT button to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using UP/DOWN button until required DATA value has been selected.
6. Pressing RIGHT/LEFT button will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.

After the data input, set to the initializing of shipping.

9. Turn POWER on.
10. Press both VOL. DOWN button on the set and Channel button **(1)** on the remote control for more than 2 seconds.
11. After the finishing of the initializing of shipping, the unit will turn off automatically.

The unit will now have the correct DATA for the new MEMORY IC.

WHEN REPLACING EEPROM (MEMORY) IC

INIT	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	0F
000	FF	3F	01	99	EF	08	23	F9	01	30	80	55	B3	36	03	60
010	05	12	1F	24	40	45	5D	62	45	4A	19	00	13	57	00	00
020	40	08	3E	00	00	00	00	00	00	00	00	00	00	00	00	00
030	72	99	59	68	99	59	59	99	59	40	20	88	0D	45	80	40
040	46	63	68	49	53	65	6A	30	00	5C	62	00	00	00	00	00
050	00	00	00	D0	73	14	1C	27	21	16	00	00	00	00	00	FC
060	FC	FA	F8	F6	15	F5	08	0D	07	42	73	00	00	00	06	F4
070	02	12	22	00	0D	F0	F0	F0	F0	F0	26	03	26	03	1E	0F
080	1E	0F	04	18	91	40	81	00	83	00	81	00	83	00	81	00
090	83	00	3C	20	3C	20	3C	20	3C	20	00	23	27	2B	2F	32
0A0	36	3A	3E	42	46	4A	4B	4D	4F	51	53	55	57	59	5B	5D
0B0	5F	61	63	66	67	68	69	6A	6B	6C	6D	6E	6F	70	71	71
0C0	72	72	72	73	73	73	74	74	74	75	75	75	76	75	76	76
0D0	76	76	77	77	77	77	78	78	78	78	79	42	00	00	00	EF
0E0	06	04	0B	01	00	01	07	3C	4F	02	0A	14	3F	49	00	00
0F0	00	00	00	00	00	50	19	32	19	00	19	44	43	40	40	40
100	10	92	FF	FF	10	30	B0	D0	F0	7B	30	57	7A	15	82	D9
110	4D	8C	28	70	20	60	10	80	20	A0	00	2C	0D	00	88	0F
120	84	10	C0	E0	12	19	00	F0	0F	00	7F	12	18	EB	83	7F
130	F9	5E	CA	52	18	F7	4C	33	4C	29	73	74	74	74	75	75
140	23	27	2B	2F	32	36	3A	3E	42	46	4A	4B	4D	4F	51	53
150	55	57	59	5B	5D	5F	61	63	66	67	68	69	6A	6B	6C	6D
160	6E	6F	70	71	71	72	72	72	73	73	73	74	74	74	75	75
170	75	76	75	76	76	76	76	77	77	77	77	78	78	78	78	79
600	31	F0	28	1F	08	08	20	80	80	80	7F	7F	7F	66	6E	80
610	20	04	04	02	00	00	00	01	00	00	00	00	00	00	00	00
620	38	30	20	10	10	08	20	80	80	80	7F	7F	7F	66	6E	B8
630	28	04	04	02	00	00	00	01	00	00	00	00	00	00	00	00
640	41	F0	60	A0	08	08	20	80	80	80	7F	7F	7F	66	6E	80
650	20	04	04	02	00	00	00	01	00	00	00	00	00	00	00	00
660	53	F0	70	A5	08	08	20	80	80	80	7F	7F	7F	66	6E	80
670	20	04	04	02	00	00	00	01	00	00	00	00	00	00	00	00
680	67	F0	A0	C0	10	08	60	80	80	80	7F	7F	7F	66	6E	B8
690	28	04	04	02	00	00	00	01	00	00	00	00	00	00	00	00

Table 1-1

WHEN REPLACING EEPROM (MEMORY) IC

INIT	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	0F
6A0	67	F0	A0	1B	10	08	60	80	80	80	7F	7F	7F	66	6E	B8
6B0	28	04	04	02	00	00	00	01	00	00	00	00	00	00	00	00
6C0	6C	90	18	F0	07	14	44	80	80	80	7B	50	7A	6B	66	B5
6D0	30	0B	0F	02	00	00	00	01	00	00	00	00	00	00	00	00
6E0	35	90	18	70	07	14	35	80	80	80	80	80	80	6B	66	B5
6F0	30	0B	0F	02	00	00	00	01	00	00	00	00	00	00	00	00
700	67	10	A8	85	2B	05	B0	80	80	80	7F	80	80	6B	66	B5
710	20	0B	0F	02	00	00	00	01	00	00	00	00	00	00	00	00
720	89	80	A8	48	2B	03	94	80	80	80	7E	80	7F	6B	66	B5
730	30	0B	0F	02	00	00	00	01	00	00	00	00	00	00	00	00
740	6C	90	18	F0	07	14	44	80	80	80	7B	50	7A	6B	66	B5
750	30	0B	0F	02	00	00	00	01	00	00	00	00	00	00	00	00
760	35	90	18	70	07	14	44	80	80	80	80	80	81	6B	66	B5
770	30	0B	0F	02	00	00	00	01	00	00	00	00	00	00	00	00
780	67	10	A8	85	2B	14	B0	80	80	80	81	80	81	6B	66	B5
790	20	0B	0F	02	00	00	00	01	00	00	00	00	00	00	00	00
7A0	89	80	A8	48	2B	66	94	80	80	80	80	80	7E	6B	66	B5
7B0	30	0B	0F	02	00	00	00	01	00	00	00	00	00	00	00	00
7C0	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
7D0	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
7E0	E7	02	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
7F0	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF

Table 1-2

ELECTRICAL ADJUSTMENTS

1. ADJUSTMENT PROCEDURE

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

CAUTION

- Use an isolation transformer when performing any service on this chassis.
- Before removing the anode cap, discharge electricity because it contains high voltage.
- When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
- When you exchange IC and Transistor with a heat sink, apply silicon grease on the contact section of the heat sink. Before applying new silicon grease, remove all the old silicon grease. (Old grease may cause damages to the IC and Transistor).

Prepare the following measurement tools for electrical adjustments.

1. Patterm Generator

On-Screen Display Adjustment

1. Set the VOLUME to minimum.
2. Press the VOL. DOWN button on the set and the channel button **(9)** on the remote control for more than 2 seconds to display adjustment mode on the screen as shown in **Fig. 1-1**.

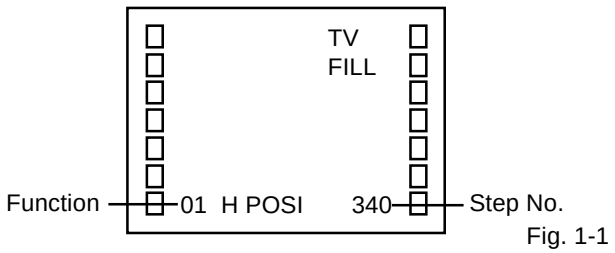


Fig. 1-1

3. Use the Channel UP/DOWN button or Channel button **(0-9)** on the remote control to select the options shown in **Fig. 1-2**.
4. Press the MENU button on the remote control to end the adjustments.
5. To display the adjustment screen for TV, AV, CS, HD-MI and PC mode, press the INPUT button on the remote control. Press the VOL.DOWN button on the set and the channel **(9)** on the remote control for more than 2 seconds.

NO.	FUNCTION	NO.	FUNCTION
01	H POSI OSD	23	BAK LIGHT CENT
02	V POSI OSD	24	BAK LIGHT MAX
03	R DRIVE(N)	25	BAK LIGHT MIN
04	R CUT OFF(N)	26	BRIGHT CENT
05	G DRIVE(N)	27	BRIGHT MAX
06	G CUT OFF(N)	28	BRIGHT MIN
07	B DRIVE(N)	29	TINT
08	B CUT OFF(N)	30	SHARP CENTER
09	R DRIVE(C)	31	SHARP MAX
10	R CUT OFF(C)	32	SHARP MIN
11	G DRIVE(C)	33	CONTRAST CENTER(N)
12	G CUT OFF(C)	34	CONTRAST MAX(N)
13	B DRIVE(C)	35	CONTRAST MIN(N)
14	B CUT OFF(C)	36	COLOR CENT
15	R DRIVE(W)	37	COLOR MAX
16	R CUT OFF(W)	38	COLOR MIN
17	G DRIVE(W)	39	CONTRAST CENTER(C)
18	G CUT OFF(W)	40	CONTRAST MAX(C)
19	B DRIVE(W)	41	CONTRAST MIN(C)
20	B CUT OFF(W)	42	CONTRAST CENTER(W)
21	H POSI	43	CONTRAST MAX(W)
22	V POSI	44	CONTRAST MIN(W)

Fig. 1-2

2. BASIC ADJUSTMENTS

2-1: CONSTANT MAX

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(40)** on the remote control to select "CONTRAST MAX(C)".
2. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "135".
3. Receive a broadcast and check if the picture is normal.
4. Press the INPUT button on the remote control to set to the AV mode. Then perform the above adjustments 1~3.
5. Press the INPUT button on the remote control to set to the CS mode.
6. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(40)** on the remote control to select "CONTRAST MAX(C)".
7. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "125".
8. Receive a broadcast and check if the picture is normal.
9. Press the INPUT button on the remote control to set to the HD-MI mode. Then perform the above adjustments 6~8.

ELECTRICAL ADJUSTMENTS

2-2: WHITE BALANCE

1. Place the set in Aging Test for more than 15 minutes.
2. Receive the gray scale pattern from the Pattern Generator.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(03)** on the remote control to select "R DRIVE(N)".
5. Press the CH. UP/DOWN button on the remote control to select the "R CUT OFF(N)", "G DRIVE(N)", "G CUT OFF(N)", "R DRIVE(C)", "R CUT OFF(C)", "G DRIVE(C)", "G CUT OFF(C)", "R DRIVE(W)", "R CUT OFF(W)", "G DRIVE(W)" or "G CUT OFF(W)".
6. Adjust the VOL. UP/DOWN button on the remote control to whiten the R CUT OFF(N), G DRIVE(N), G CUT OFF(N), R DRIVE(C), R CUT OFF(C)", G DRIVE(C), G CUT OFF(C), R DRIVE(W), R CUT OFF(W) G DRIVE(W) and G CUT OFF(W), B DRIVE(W) and B CUT OFF(W) at each step tone sections equally.
7. Perform the above adjustments 5 and 6 until the white achieved.

ELECTRICAL ADJUSTMENTS

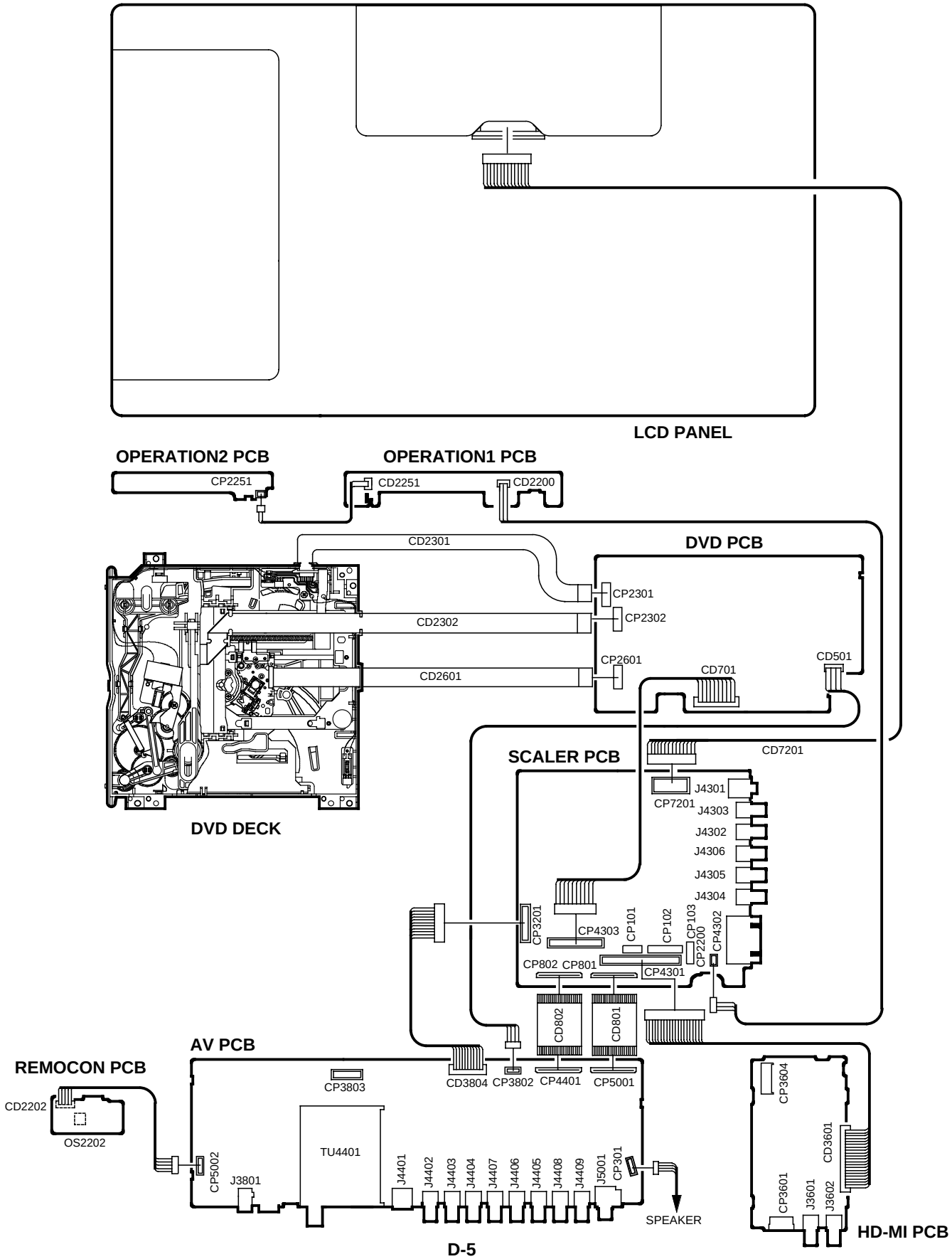
2-3: Confirmation of Fixed Value (Step No.)

Please check if the fixed values of each the adjustment items are set correctly referring below.

NO.	FUNCTION	TV	AV	GAME	DVD	CS				HD-MI				PC					
						480i	480p	720p	1080i	480i	480p	720p	1080i	VGA	VGA70	SVGA	XGA	WXGA	WXGA44.7
01	H POSI OSD	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340
02	V POSI OSD	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85
03	R DRIVE (N)	122	122	122	122	122	122	122	122	122	122	122	122	120	120	120	120	120	120
05	G DRIVE (N)	115	115	115	115	115	115	115	115	115	115	115	115	120	120	120	120	120	120
06	G CUTOFF (N)	119	119	119	119	119	119	119	119	119	119	119	119						
07	B DRIVE (N)	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120
09	R DRIVE (C)	124	124	124	124	124	124	124	124	124	124	124	124						
11	G DRIVE (C)	119	119	119	119	119	119	119	119	119	119	119	119						
12	G CUTOFF (C)	134	134	134	134	134	134	134	134	134	134	134	134						
13	B DRIVE (C)	130	130	130	130	130	130	130	130	130	130	130	130						
15	R DRIVE (W)	106	106	106	106	106	106	106	106	106	106	106	106						
17	G DRIVE (W)	94	94	94	94	94	94	94	94	94	94	94	94						
18	G CUTOFF (W)	126	126	126	126	126	126	126	126	126	126	126	126						
19	B DRIVE (W)	90	90	90	90	90	90	90	90	90	90	90	90						
21	H POSI	302	302	302	302	302	144	342	307	293	144	296	251	143	159	213	290	312	321
22	V POSI	38	38	38	38	38	29	28	26	38	26	28	26	50	20	32	32	24	24
23	BAK LIGHT CENT	70	70	70	50	70	70	70	70	70	70	70	70	70	70	70	70	70	70
24	BAK LIGHT MAX	140	140	140	100	140	140	140	140	140	140	140	140	140	140	140	140	140	140
25	BAK LIGHT MIN	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
26	BRIGHT CENT	128	128	128	128	128	128	128	128	128	128	128	128	118	118	118	118	118	118
27	BRIGHT MAX	150	150	170	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
28	BRIGHT MIN	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
29	TINT	140	140	140	140	140	145	145	145	140	145	145	145						
30	SHARP CENTER	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
31	SHARP MAX	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255
32	SHARP MIN	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
33	CONT CENTER (N)	105	105	105	105	105	105	105	105	105	105	105	105	128	128	128	128	128	128
34	CONT MAX (N)	135	135	135	135	135	135	135	135	135	135	135	135	150	150	150	150	150	150
35	CONT MIN (N)	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
36	COLOR CENT	80	80	80	80	80	80	80	80	80	80	80	80						
37	COLOR MAX	127	127	127	127	127	127	127	127	127	127	127	127						
38	COLOR MIN	00	00	00	0	00	00	00	00	00	00	00	00						
39	CONT CENTER (C)	128	128	128	128	128	128	128	128	128	128	128	128						
40	CONT MAX (C)	150	150	150	150	150	150	150	150	150	150	150	150						
41	CONT MIN (C)	50	50	50	50	50	50	50	50	50	50	50	50						
42	CONT CENTER (W)	95	95	95	95	95	95	95	95	95	95	95	95						
43	CONT MAX (W)	125	125	125	125	125	125	125	125	125	125	125	125						
44	CONT MIN (W)	50	50	50	50	50	50	50	50	50	50	50	50						

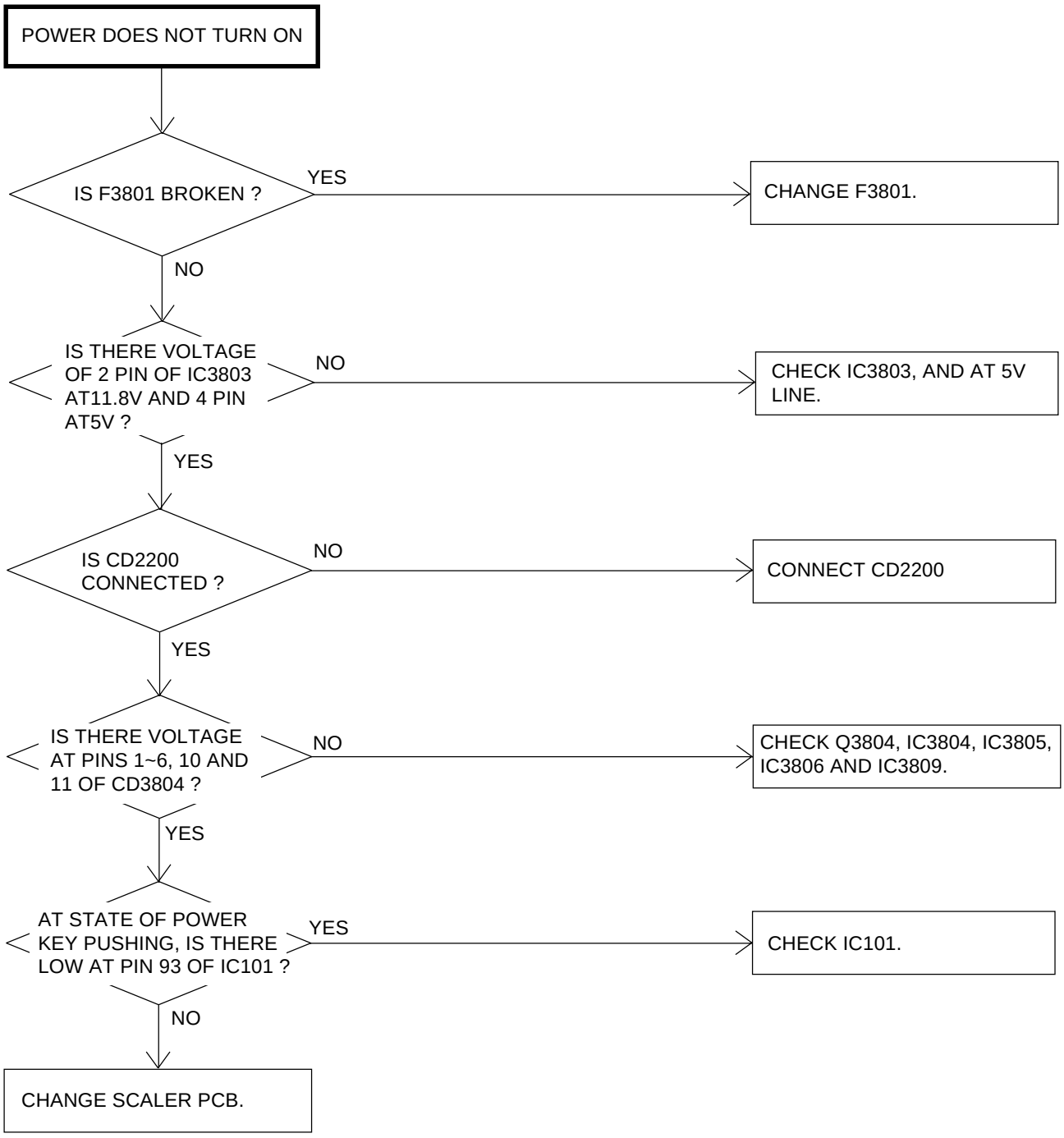
ELECTRICAL ADJUSTMENTS

3. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)

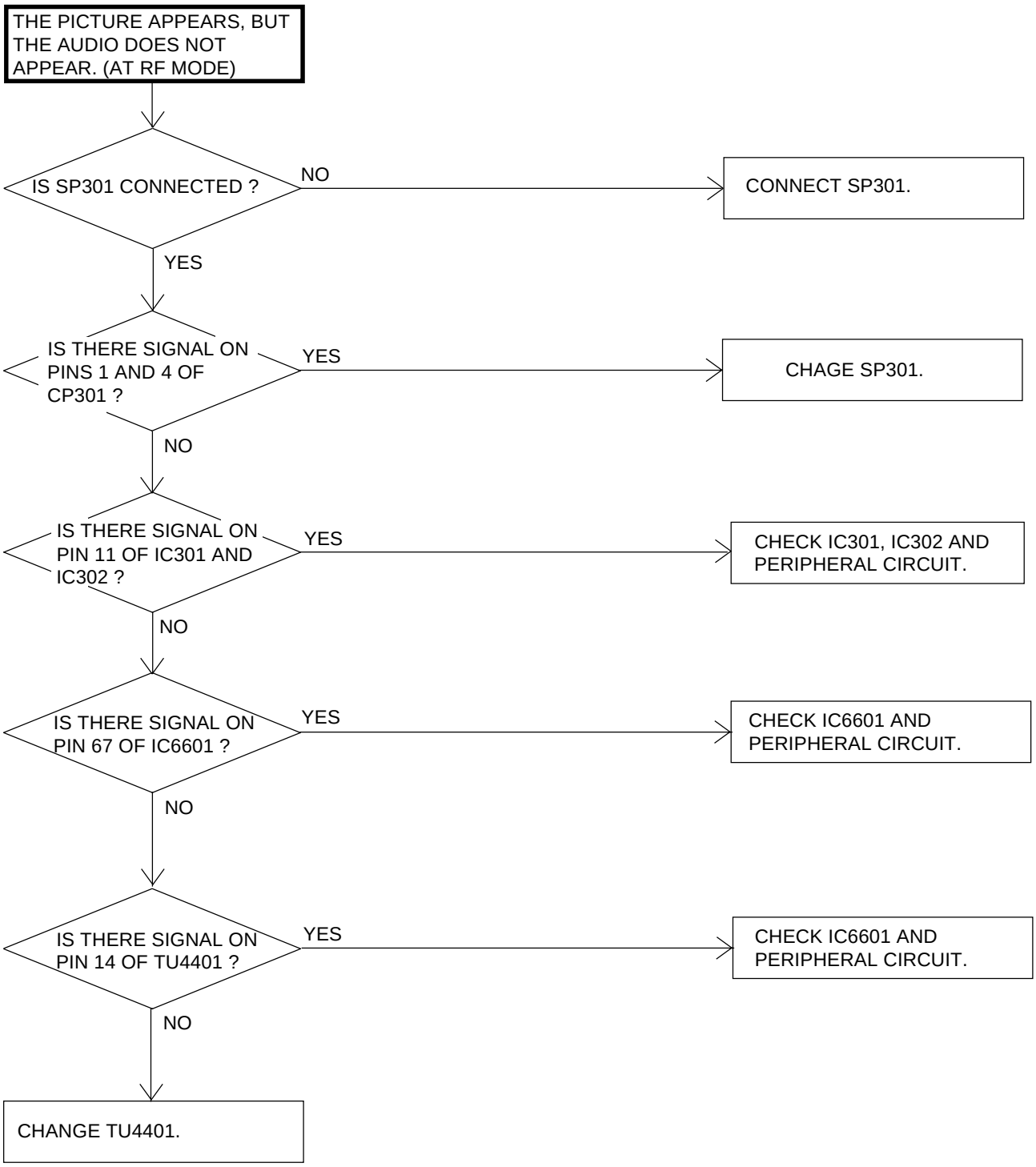


TROUBLESHOOTING GUIDE

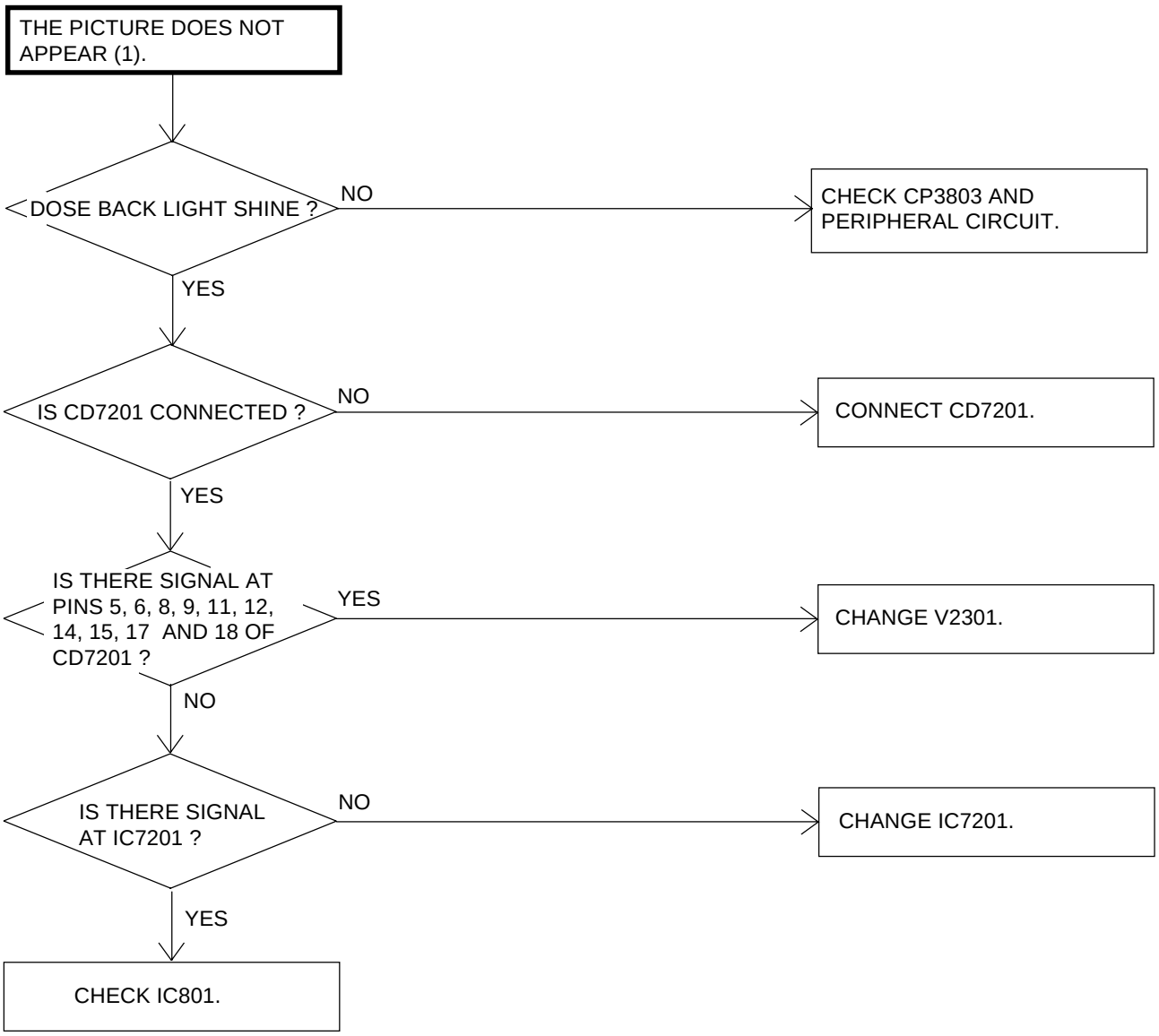
(LCD SECTION)



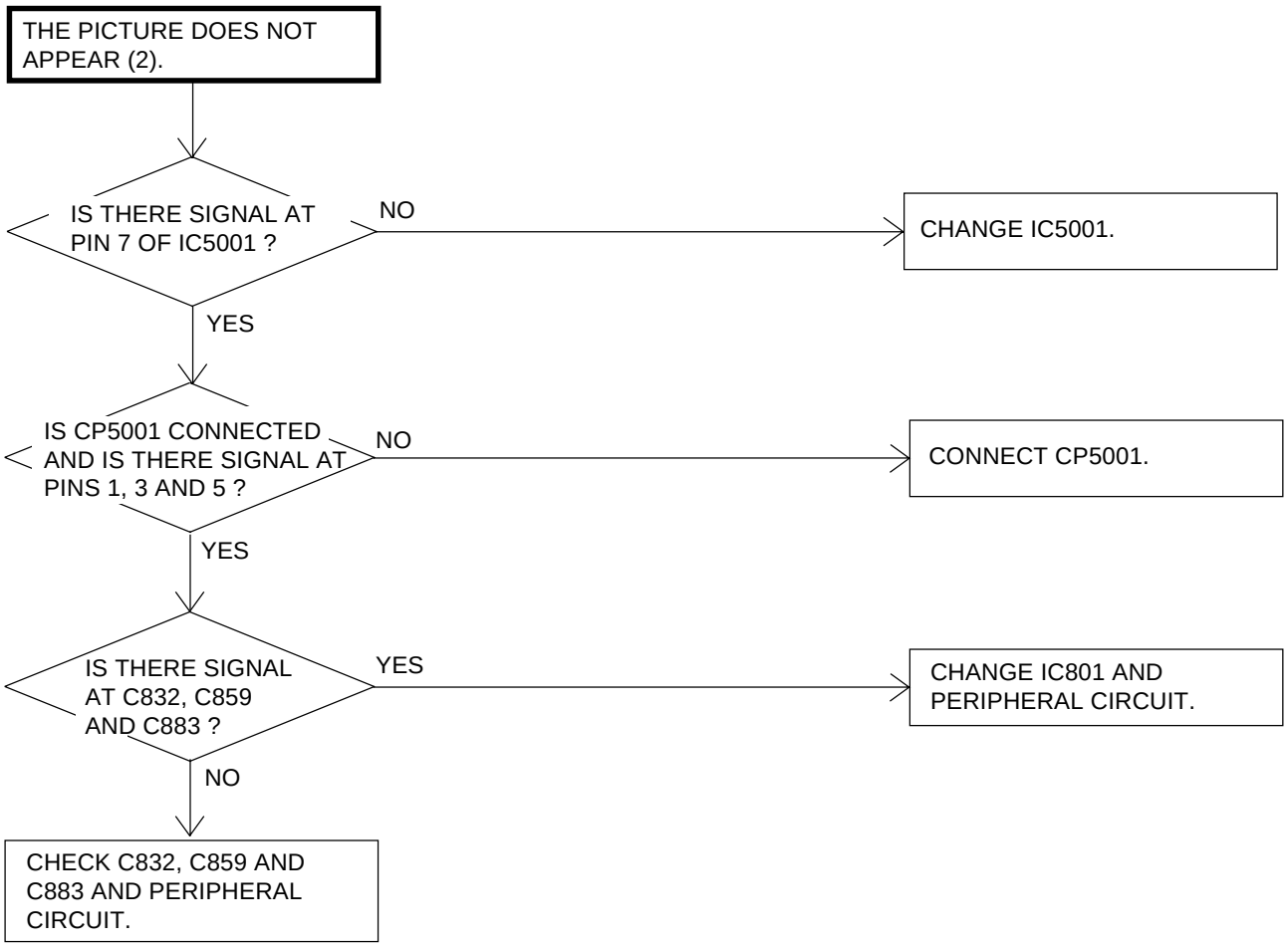
TROUBLESHOOTING GUIDE


THE PICTURE APPEARS, BUT THE AUDIO DOES NOT APPEAR. (AT RF MODE)
IS SP301 CONNECTED ?
NO
CONNECT SP301.
YES
IS THERE SIGNAL ON PINS 1 AND 4 OF CP301 ?
YES
CHAGE SP301.
NO
IS THERE SIGNAL ON PIN 11 OF IC301 AND IC302 ?
YES
CHECK IC301, IC302 AND PERIPHERAL CIRCUIT.
NO
IS THERE SIGNAL ON PIN 67 OF IC6601 ?
YES
CHECK IC6601 AND PERIPHERAL CIRCUIT.
NO
IS THERE SIGNAL ON PIN 14 OF TU4401 ?
YES
CHECK IC6601 AND PERIPHERAL CIRCUIT.
NO
CHANGE TU4401.

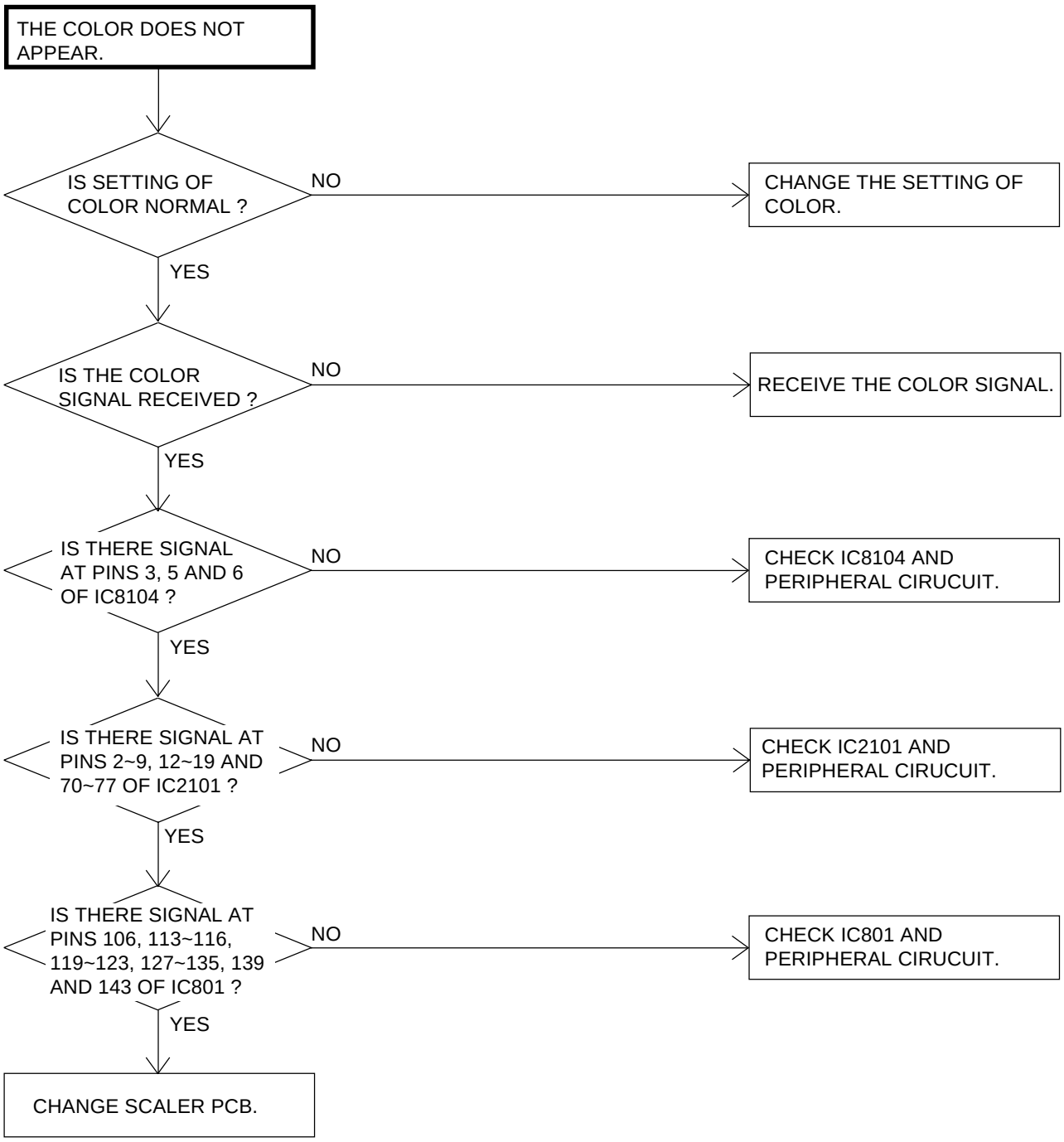
TROUBLESHOOTING GUIDE



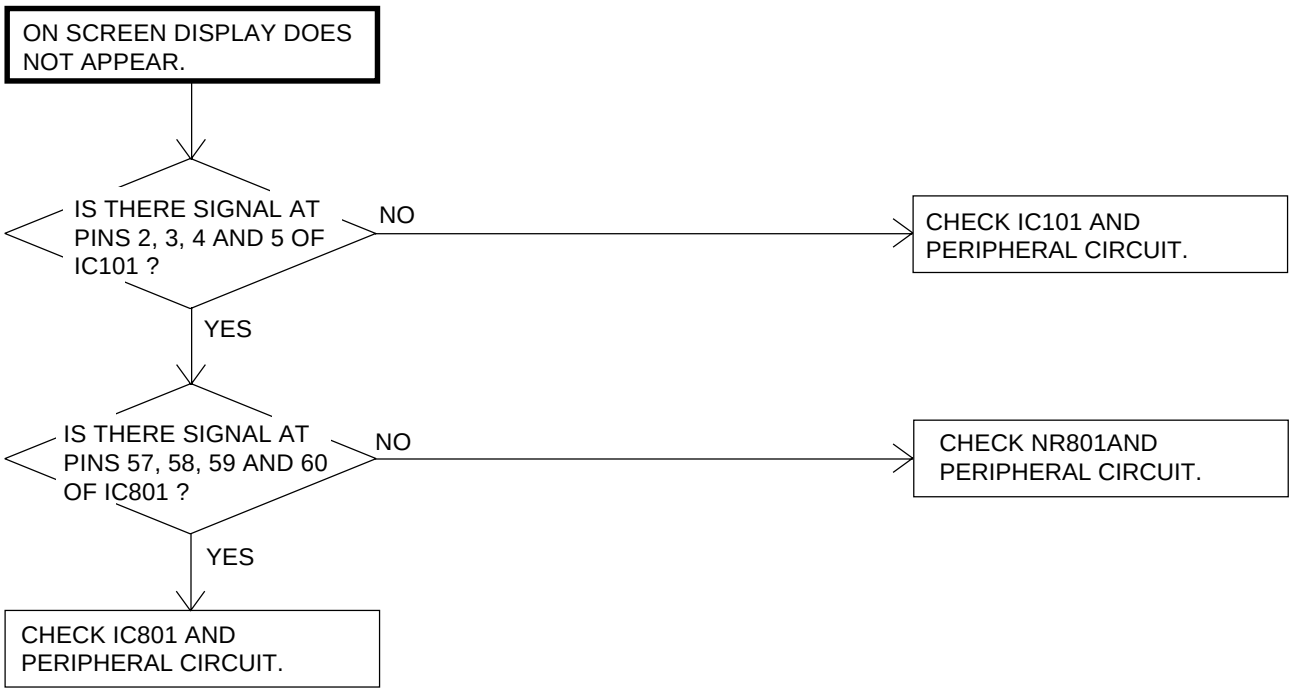
TROUBLESHOOTING GUIDE


THE PICTURE DOES NOT APPEAR (2).
IS THERE SIGNAL AT PIN 7 OF IC5001 ?
NO
CHANGE IC5001.
YES
IS CP5001 CONNECTED AND IS THERE SIGNAL AT PINS 1, 3 AND 5 ?
NO
CONNECT CP5001.
YES
IS THERE SIGNAL AT C832, C859 AND C883 ?
YES
CHANGE IC801 AND PERIPHERAL CIRCUIT.
NO
CHECK C832, C859 AND C883 AND PERIPHERAL CIRCUIT.

TROUBLESHOOTING GUIDE

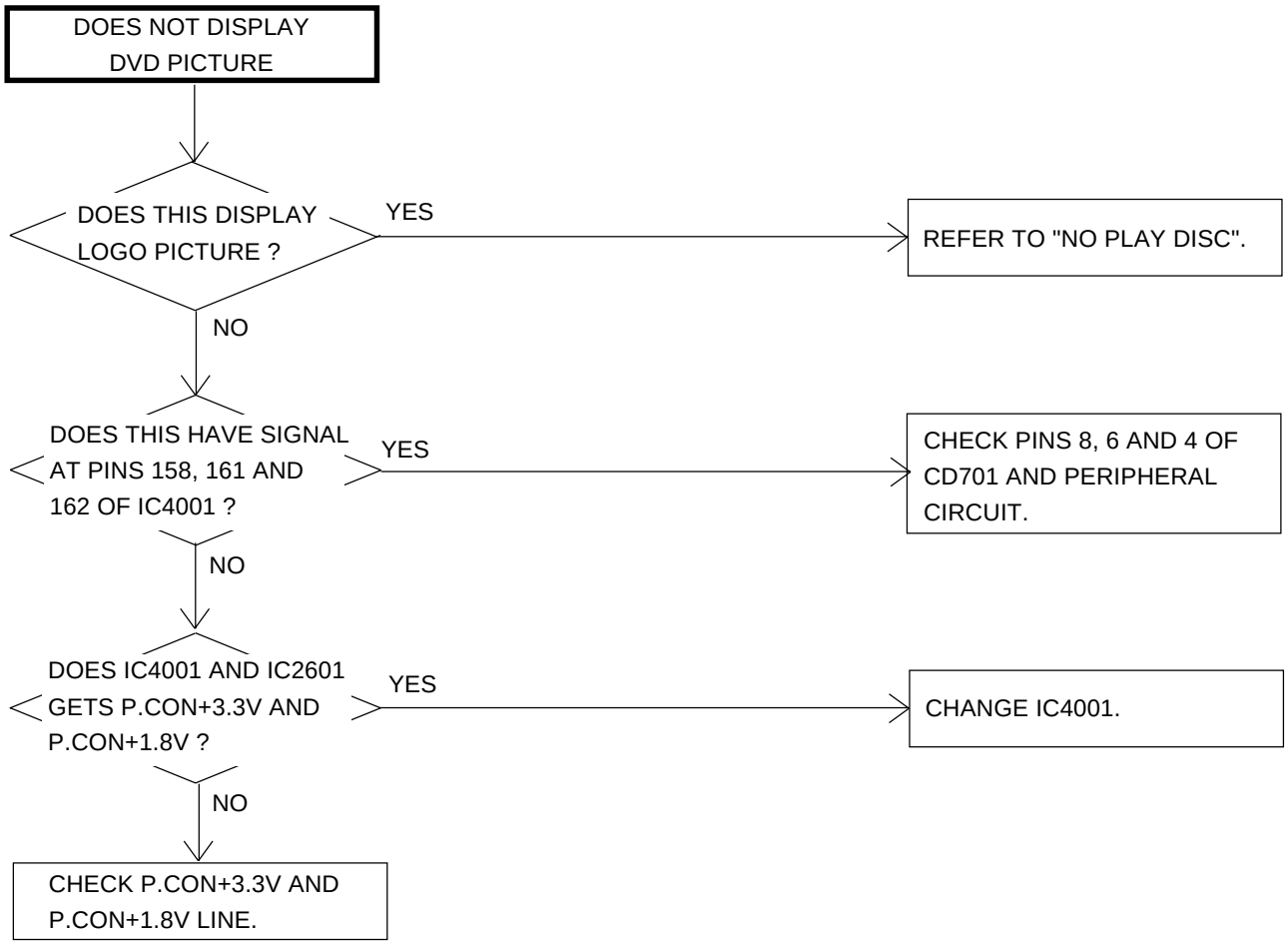

THE COLOR DOES NOT APPEAR.
IS SETTING OF COLOR NORMAL ?
NO
CHANGE THE SETTING OF COLOR.
YES
IS THE COLOR SIGNAL RECEIVED ?
NO
RECEIVE THE COLOR SIGNAL.
YES
IS THERE SIGNAL AT PINS 3, 5 AND 6 OF IC8104 ?
NO
CHECK IC8104 AND PERIPHERAL CIRUCUIT.
YES
IS THERE SIGNAL AT PINS 2~9, 12~19 AND 70~77 OF IC2101 ?
NO
CHECK IC2101 AND PERIPHERAL CIRUCUIT.
YES
IS THERE SIGNAL AT PINS 106, 113~116, 119~123, 127~135, 139 AND 143 OF IC801 ?
NO
CHECK IC801 AND PERIPHERAL CIRUCUIT.
YES
CHANGE SCALER PCB.

TROUBLESHOOTING GUIDE

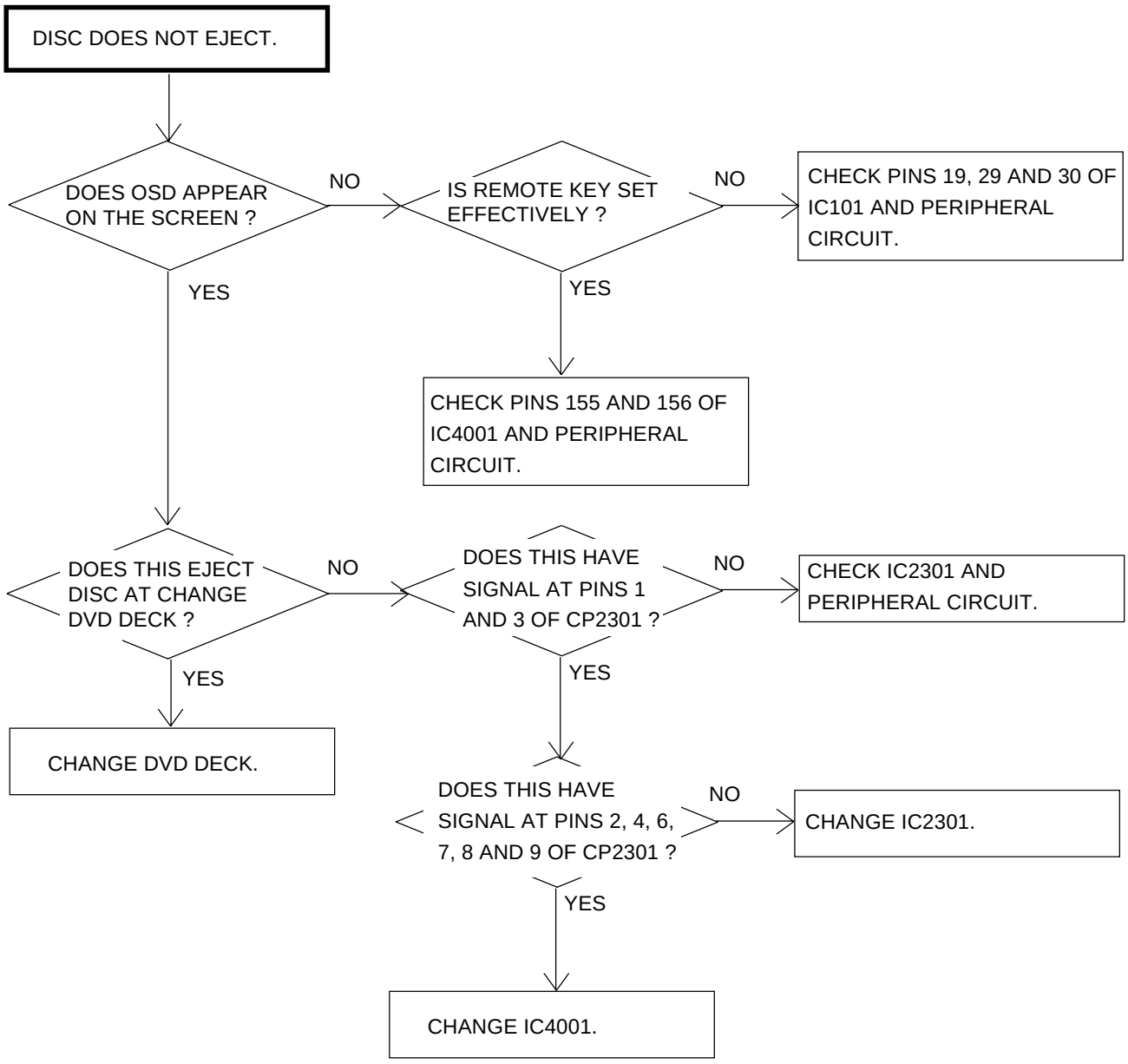

ON SCREEN DISPLAY DOES NOT APPEAR.
IS THERE SIGNAL AT PINS 2, 3, 4 AND 5 OF IC101 ?
NO
CHECK IC101 AND PERIPHERAL CIRCUIT.
YES
IS THERE SIGNAL AT PINS 57, 58, 59 AND 60 OF IC801 ?
NO
CHECK NR801AND PERIPHERAL CIRCUIT.
YES
CHECK IC801 AND PERIPHERAL CIRCUIT.

TROUBLESHOOTING GUIDE

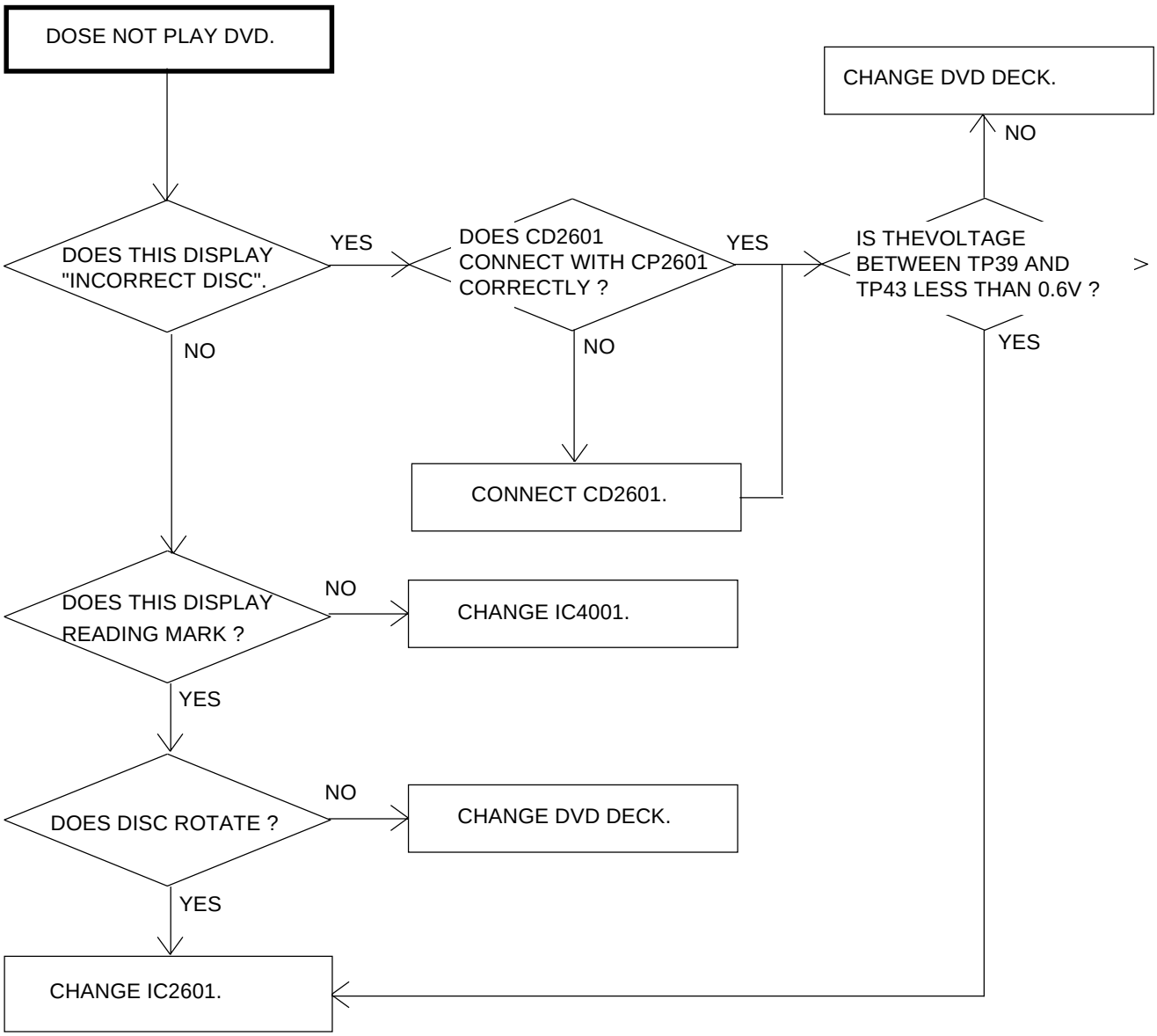
(DVD SECTION)


DOES NOT DISPLAY DVD PICTURE
DOES THIS DISPLAY LOGO PICTURE ?
YES
REFER TO "NO PLAY DISC".
NO
DOES THIS HAVE SIGNAL AT PINS 158, 161 AND 162 OF IC4001 ?
YES
CHECK PINS 8, 6 AND 4 OF CD701 AND PERIPHERAL CIRCUIT.
NO
DOES IC4001 AND IC2601 GETS P.CON+3.3V AND P.CON+1.8V ?
YES
CHANGE IC4001.
NO
CHECK P.CON+3.3V AND P.CON+1.8V LINE.

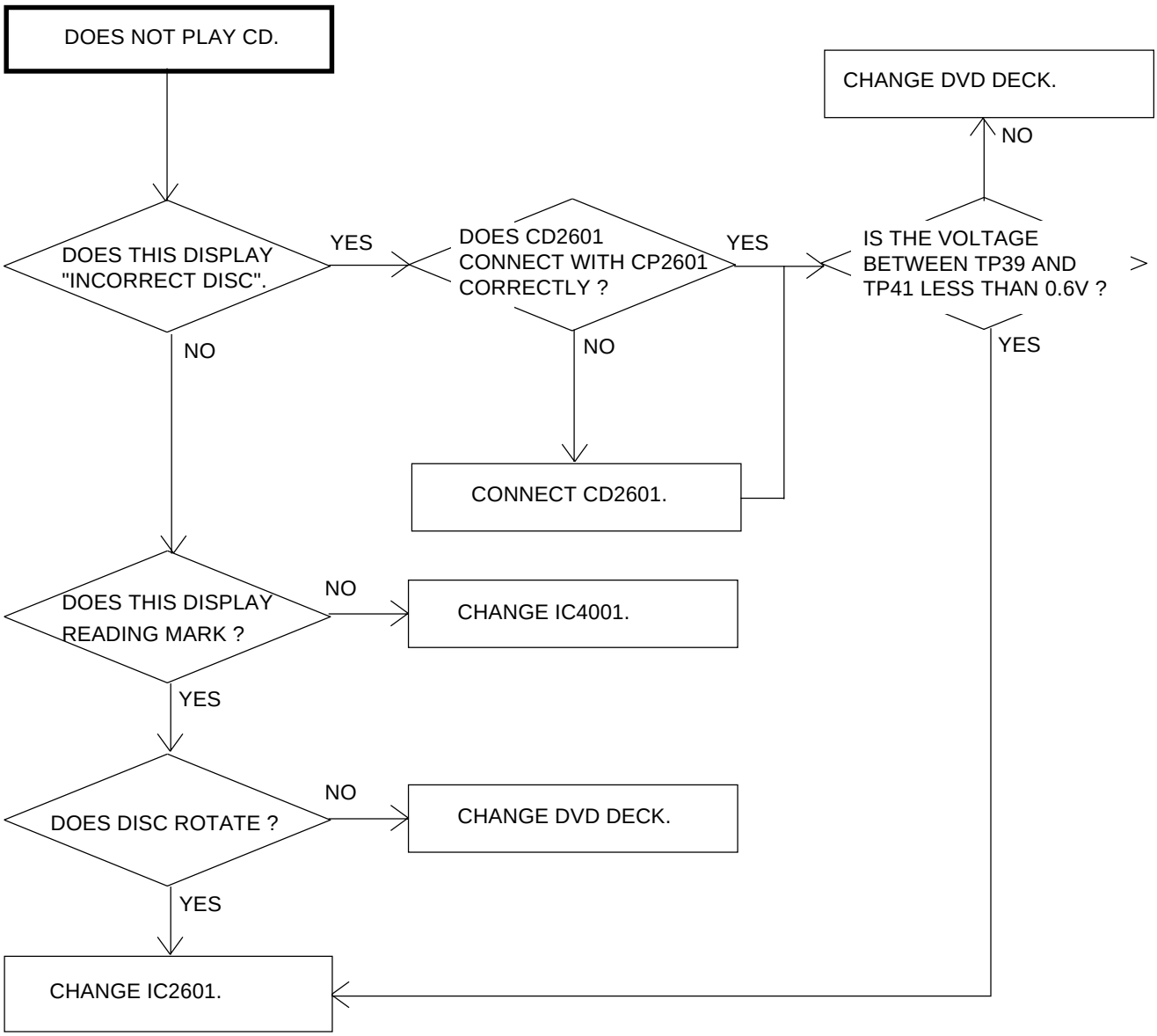
TROUBLESHOOTING GUIDE


DISC DOES NOT EJECT.
DOES OSD APPEAR ON THE SCREEN ?
NO
IS REMOTE KEY SET EFFECTIVELY ?
NO
CHECK PINS 19, 29 AND 30 OF IC101 AND PERIPHERAL CIRCUIT.
YES
YES
CHECK PINS 155 AND 156 OF IC4001 AND PERIPHERAL CIRCUIT.
DOES THIS EJECT DISC AT CHANGE DVD DECK ?
NO
DOES THIS HAVE SIGNAL AT PINS 1 AND 3 OF CP2301 ?
NO
CHECK IC2301 AND PERIPHERAL CIRCUIT.
YES
YES
CHANGE DVD DECK.
DOES THIS HAVE SIGNAL AT PINS 2, 4, 6, 7, 8 AND 9 OF CP2301 ?
NO
CHANGE IC2301.
YES
CHANGE IC4001.

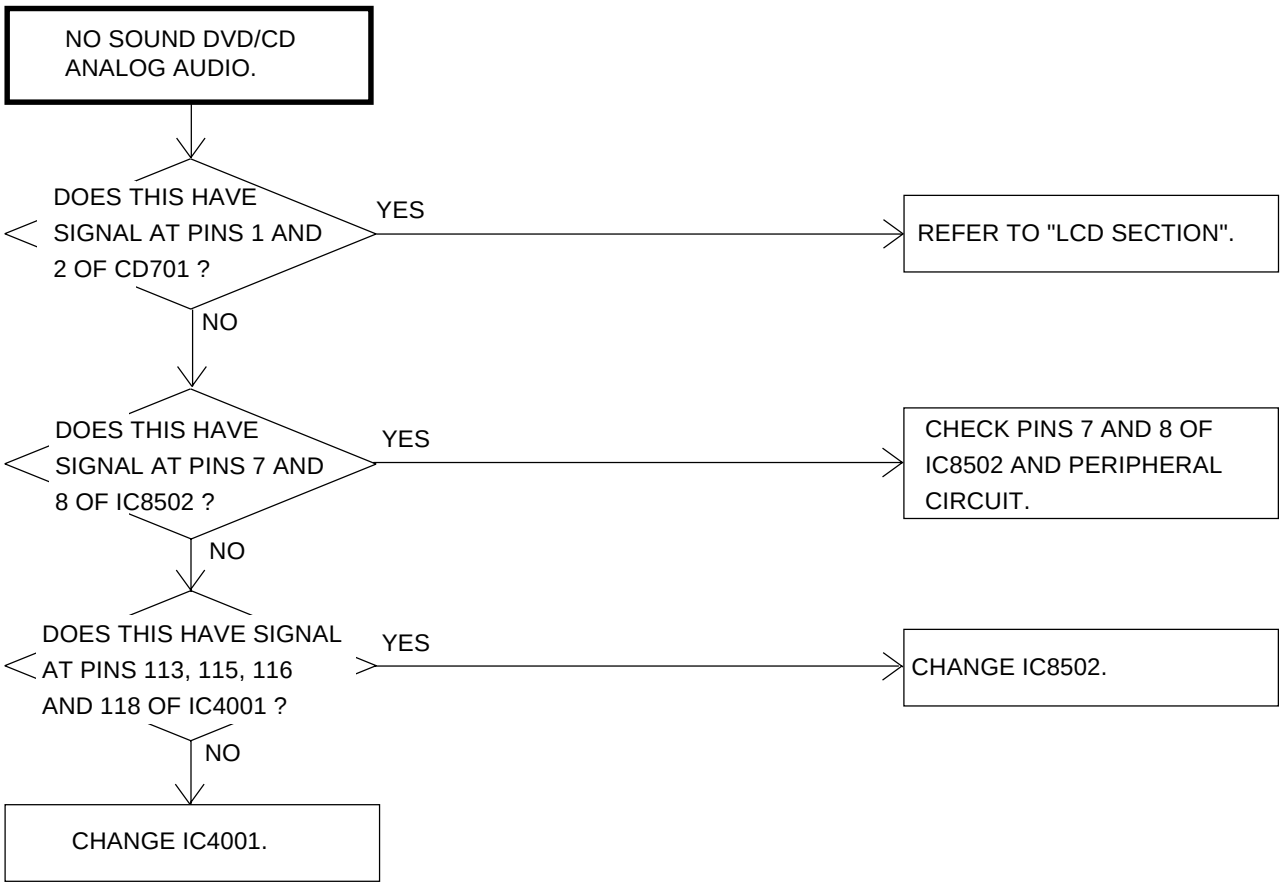
TROUBLESHOOTING GUIDE

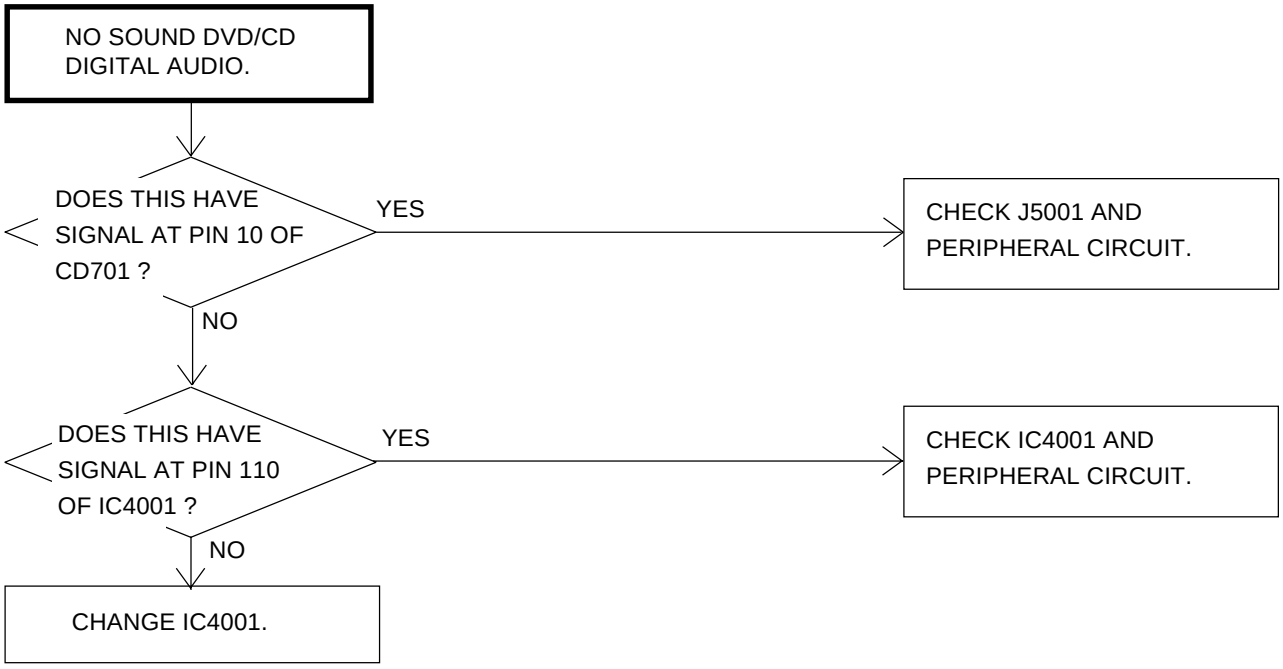


TROUBLESHOOTING GUIDE

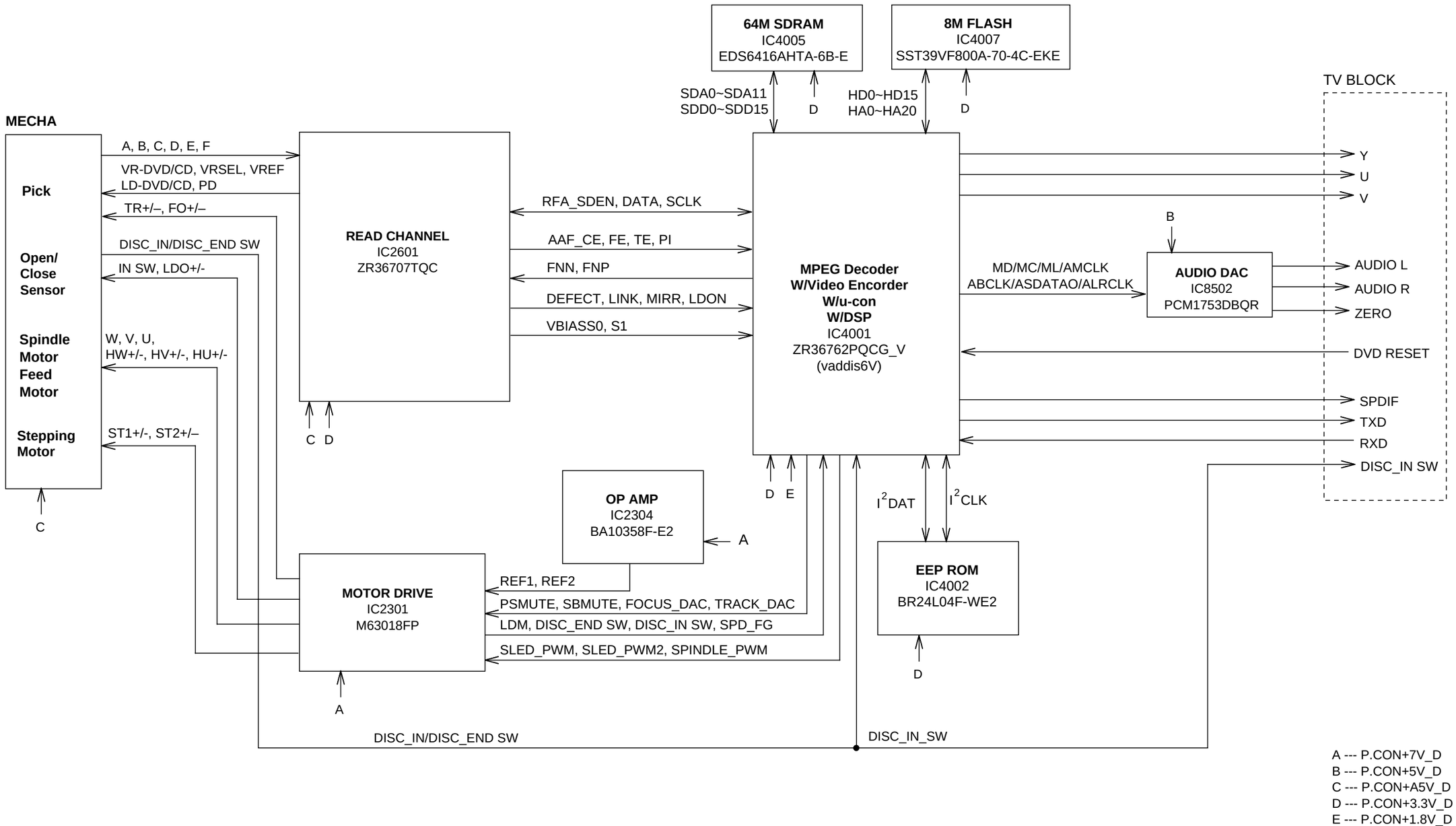


TROUBLESHOOTING GUIDE


NO SOUND DVD/CD ANALOG AUDIO.
DOES THIS HAVE SIGNAL AT PINS 1 AND 2 OF CD701 ?
YES
REFER TO "LCD SECTION".
NO
DOES THIS HAVE SIGNAL AT PINS 7 AND 8 OF IC8502 ?
YES
CHECK PINS 7 AND 8 OF IC8502 AND PERIPHERAL CIRCUIT.
NO
DOES THIS HAVE SIGNAL AT PINS 113, 115, 116 AND 118 OF IC4001 ?
YES
CHANGE IC8502.
NO
CHANGE IC4001.

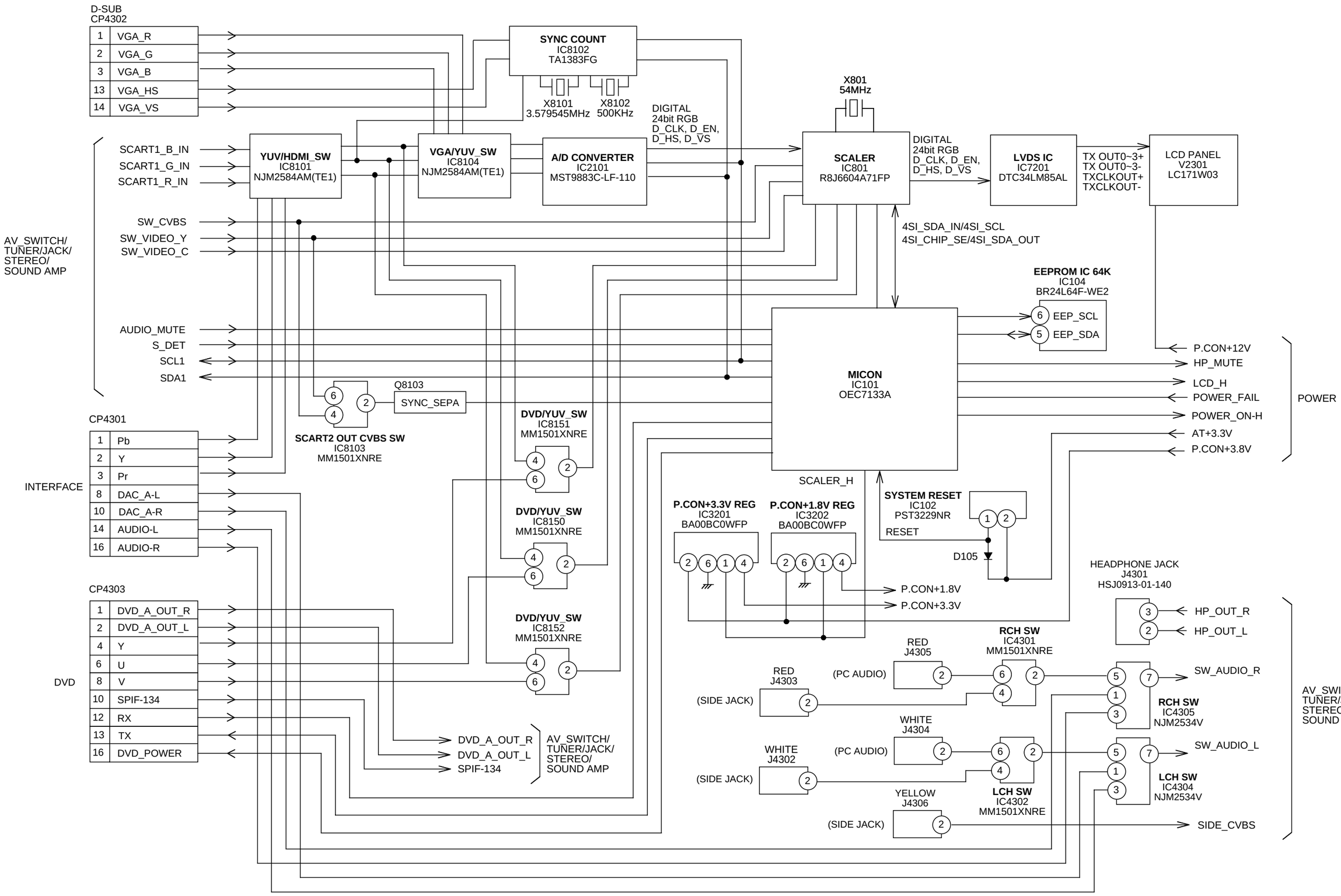

NO SOUND DVD/CD DIGITAL AUDIO.
DOES THIS HAVE SIGNAL AT PIN 10 OF CD701 ?
YES
CHECK J5001 AND PERIPHERAL CIRCUIT.
NO
DOES THIS HAVE SIGNAL AT PIN 110 OF IC4001 ?
YES
CHECK IC4001 AND PERIPHERAL CIRCUIT.
NO
CHANGE IC4001.

DVD BLOCK DIAGRAM



A --- P.CON+7V_D
B --- P.CON+5V_D
C --- P.CON+A5V_D
D --- P.CON+3.3V_D
E --- P.CON+1.8V_D

SCALER/LVDS/MICON/ADC/JACK/AV_SW/REGULATOR BLOCK DIAGRAM



AV_SW/TUNER/JACK/STEREO/SOUND AMP BLOCK DIAGRAM

SCALER/LVDS/
MICON/ADC/
JACK/AV_SW/
REGULATOR

SCART1_G_IN
SCART1_B_IN
SCART1_R_IN
SW_VIDEO_Y
SW_VIDEO_C
S_DET
SW_CVBS
SIDE_CVBS

POWER

P.CON+32V
SOUND+B

CS_IN
2 Y J4407
2 U J4406
2 V J4405

CS_AUDIO_IN
2 L J4408
2 R J4409

S_VIDEO
3 Y
4 C
6 S_DET
J4401

VIDEO1_IN(REAR)
2 V J4402
2 L J4403
2 R J4404

7 OUT IN2 3
5 IN3 IN1 1
TUNER/AV1(REAR)/AV2(SIDE) SW
IC5001 NJM2534V

TU4401
17 V_OUT
14 SIF_OUT
15 +32V
10 SCL
11 SDA

STEREO
IC6601 MSP4440G-QA-C13-100

50 AV_A_L
51 AV_A_R
53 SW_A_L
54 SW_A_R
56 YUV_A_L
57 YUV_A_R
47 DVD_A_L
48 DVD_A_R
67 ANA_IN1+
2 I2C_CL
3 I2C_DA

XTAL_IN 71
XTAL_OUT 72
X6601
18.432MHz
DACM_R 27
DACM_L 28
DACA_R 24
DACA_L 25

SCALER/LVDS/
MICON/ADC/
JACK/AV_SW/
REGULATOR

SW_AUDIO_L
SW_AUDIO_R
DVD_A_OUT_L
DVD_A_OUT_R
SCL
SDA
AUDIO_MUTE

Q5004
LEVEL SHIFT
Q5005
LEVEL SHIFT

SOUND AMP IC
IC302 LA4901-E

11 IN
7 ON TIME MUTE
20 VCC
21 VCC(SW)
1 HP IN
OUT+ 16
OUT- 17
HP OUT R 28

SPEAKER
SP302

SPEAKER
SP301

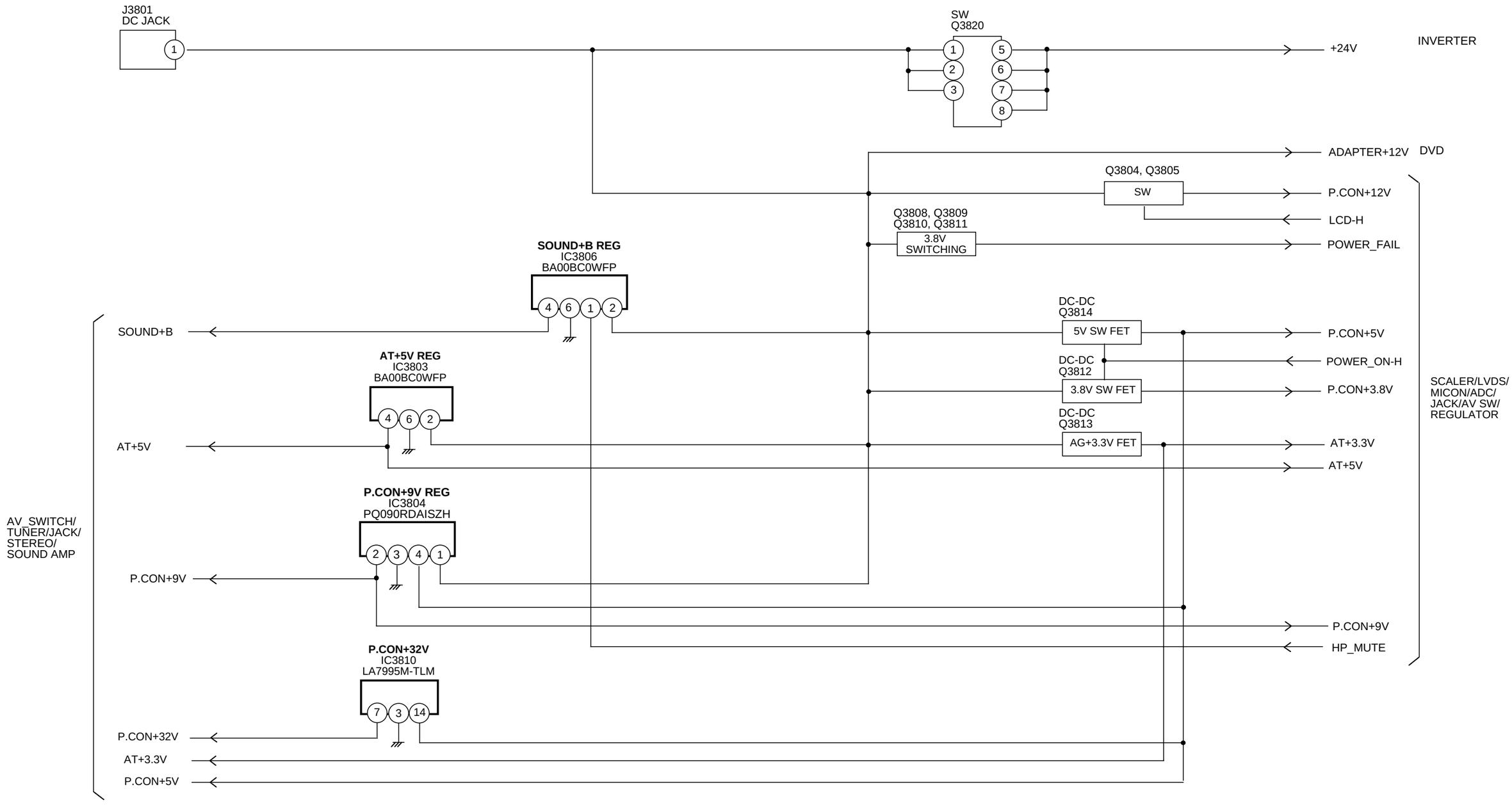
SOUND AMP IC
IC301 LA4901-E

11 IN
7 ON TIME MUTE
20 VCC
21 VCC(SW)
1 HP IN
OUT+ 16
OUT- 17
HP OUT L 28

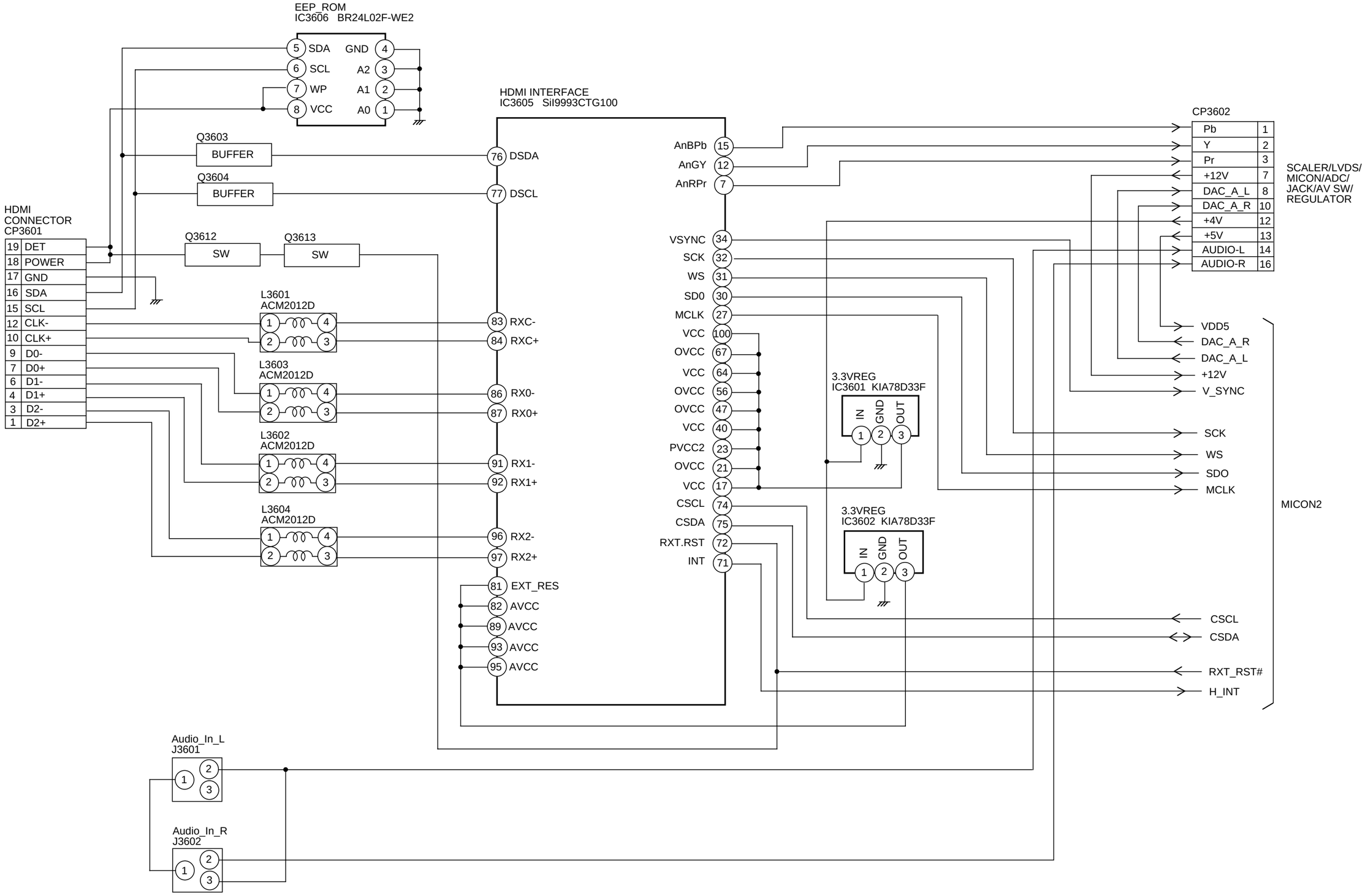
HP_OUT_R
HP_OUT_L

SCALER/LVDS/
MICON/ADC/
JACK/AV_SW/
REGULATOR

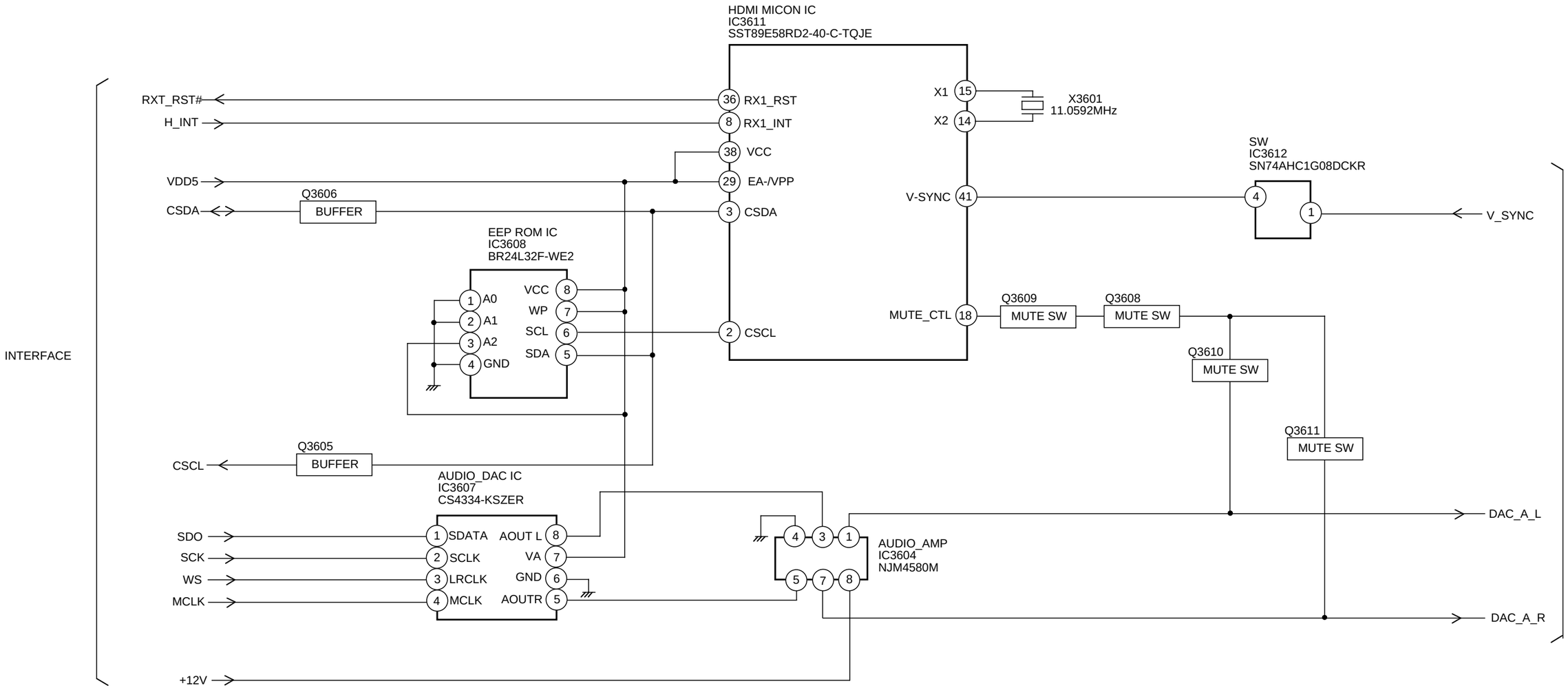
POWER BLOCK DIAGRAM



INTERFACE BLOCK DIAGRAM

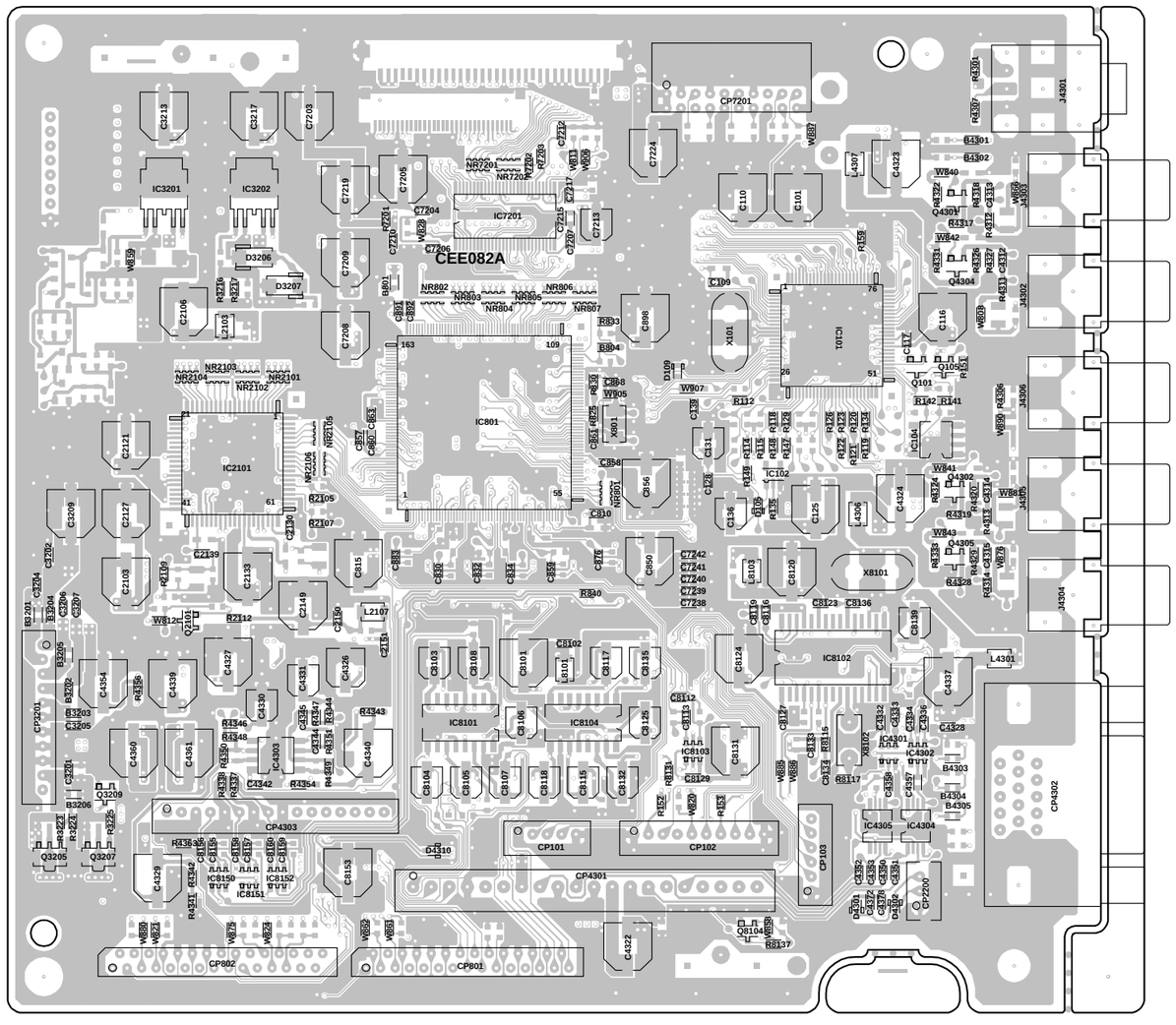


MICON2 BLOCK DIAGRAM

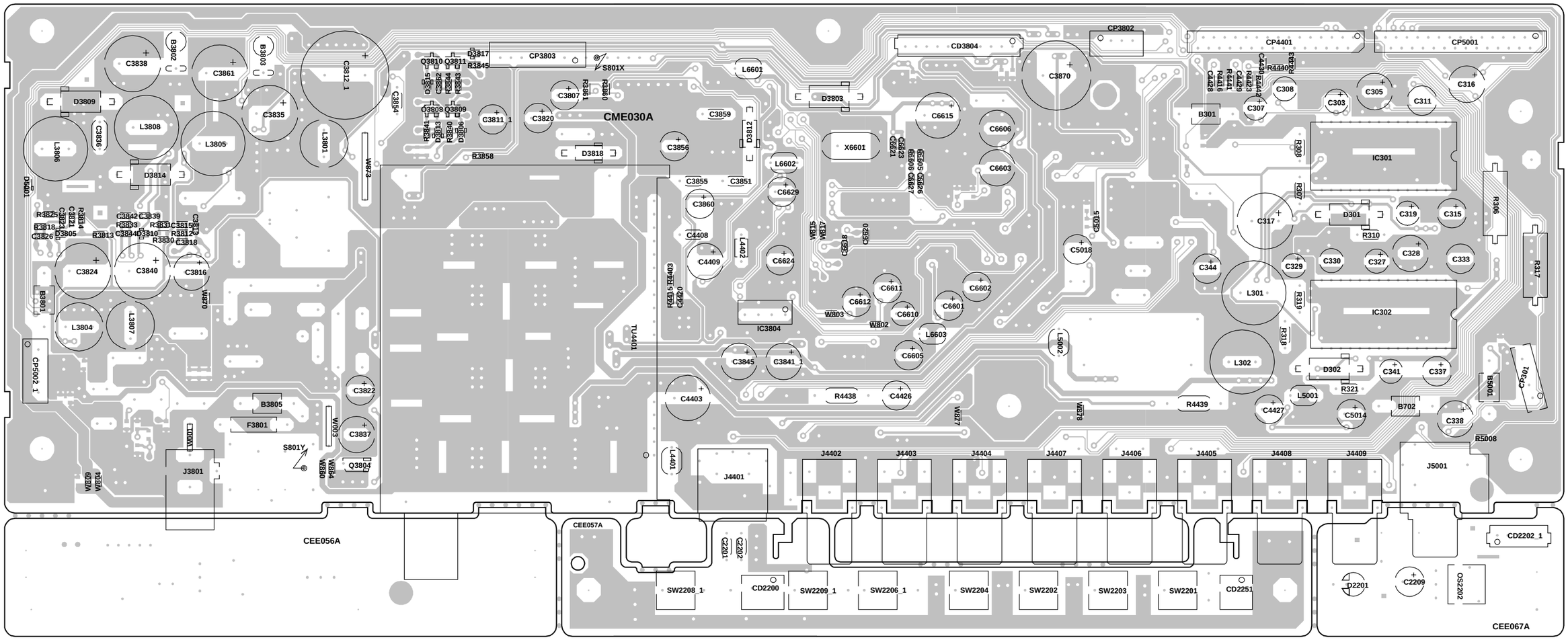


PRINTED CIRCUIT BOARDS

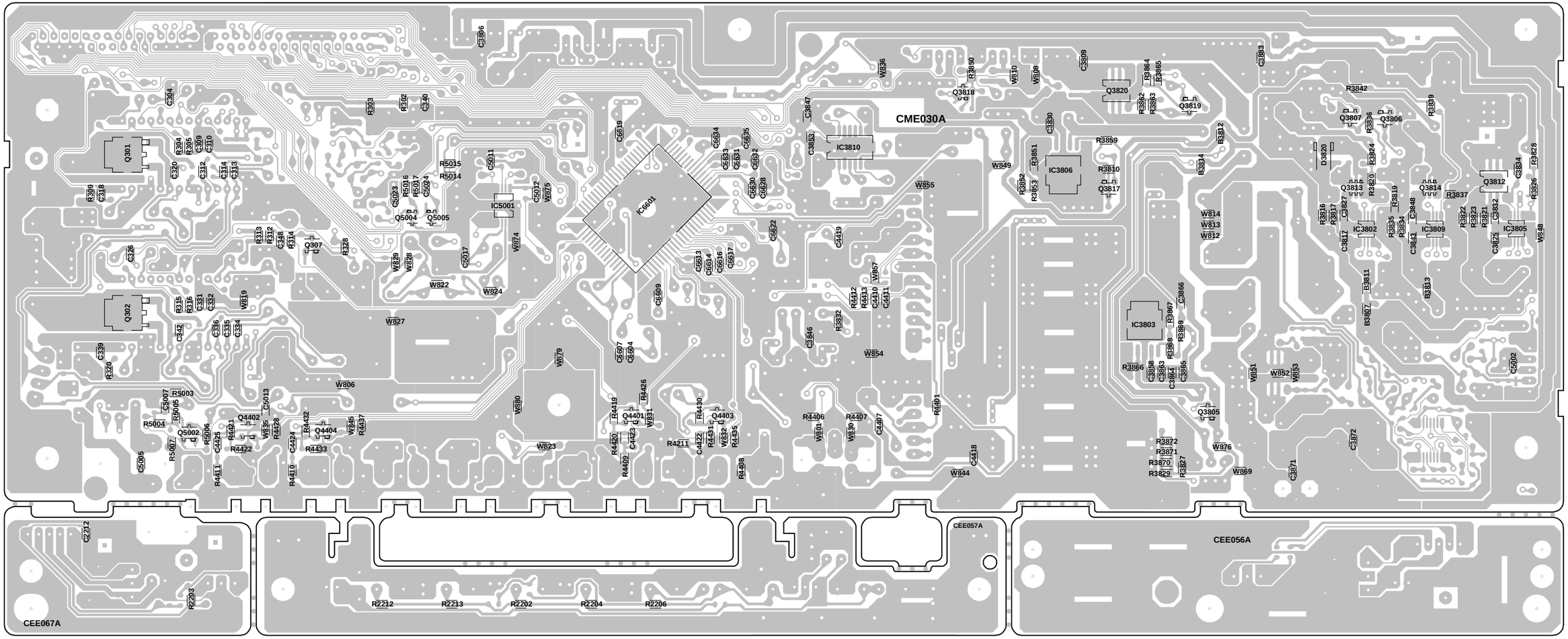
SCALER (TOP SIDE)


CEE082A
CP7201
IC3201
IC3202
IC7201
D3206
D3207
IC801
IC2101
IC8101
IC8102
IC8104
X8101
X101
IC101
IC102
IC4301
IC4302
IC4303
IC4304
IC4305
CP101
CP102
CP103
CP4301
CP4302
CP4303
CP802
CP801
CP2200
CP2201
Q3205
Q3207
Q3209
Q4301
Q4302
Q4304
Q4305
Q8104
Q101
Q2101
D4310
D4301
D4302
D109
IC8150
IC8151
IC8152
IC8153
L2107
L4301
L8101
L4307
L4306
L4305
L4303
L4304
C7242
C7241
C7240
C7239
C7238
C8123
C8136
C8102
C8103
C8106
C8101
C8117
C8138
C8124
C8112
C8113
C8127
C8133
C8115
C8131
C8129
C8104
C8105
C8107
C8118
C8115
C8132
C8116
C8119
C8139
C8134
C8117
C8135
C8150
C8151
C8152
C8153
C4328
C4323
C4324
C4125
C4126
C4322
C4329
C4327
C4331
C4426
C4354
C4439
C4430
C4360
C4361
C4340
C4342
C4345
C4347
C4344
C4343
C4346
C4348
C4303
C4336
C4337
C4332
C4334
C4335
C4336
C4457
C4458
C4301
C4302
C4303
C4304
C4305
C4306
C4307
C4308
C4309
C4310
C4311
C4312
C4313
C4314
C4315
C4316
C4317
C4318
C4319
C4320
C4321
C4322
C4323
C4324
C4325
C4326
C4327
C4328
C4329
C4330
C4331
C4332
C4333
C4334
C4335
C4336
C4337
C4338
C4339
C4340

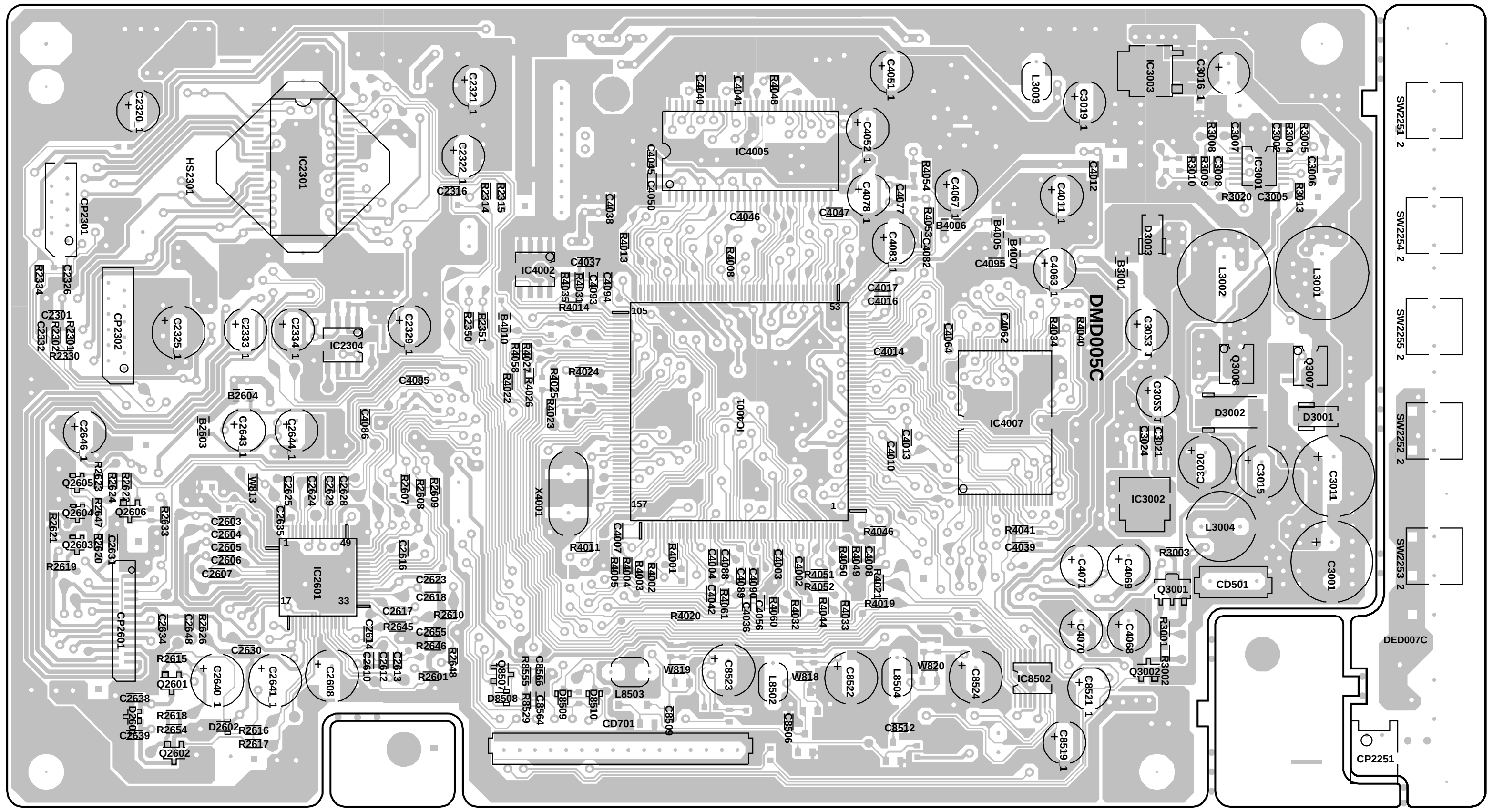
PRINTED CIRCUIT BOARDS
AV/OPERATION1/REMOCON (TOP SIDE)



PRINTED CIRCUIT BOARDS
AV/OPERATION1/REMOCON (BOTTOM SIDE)

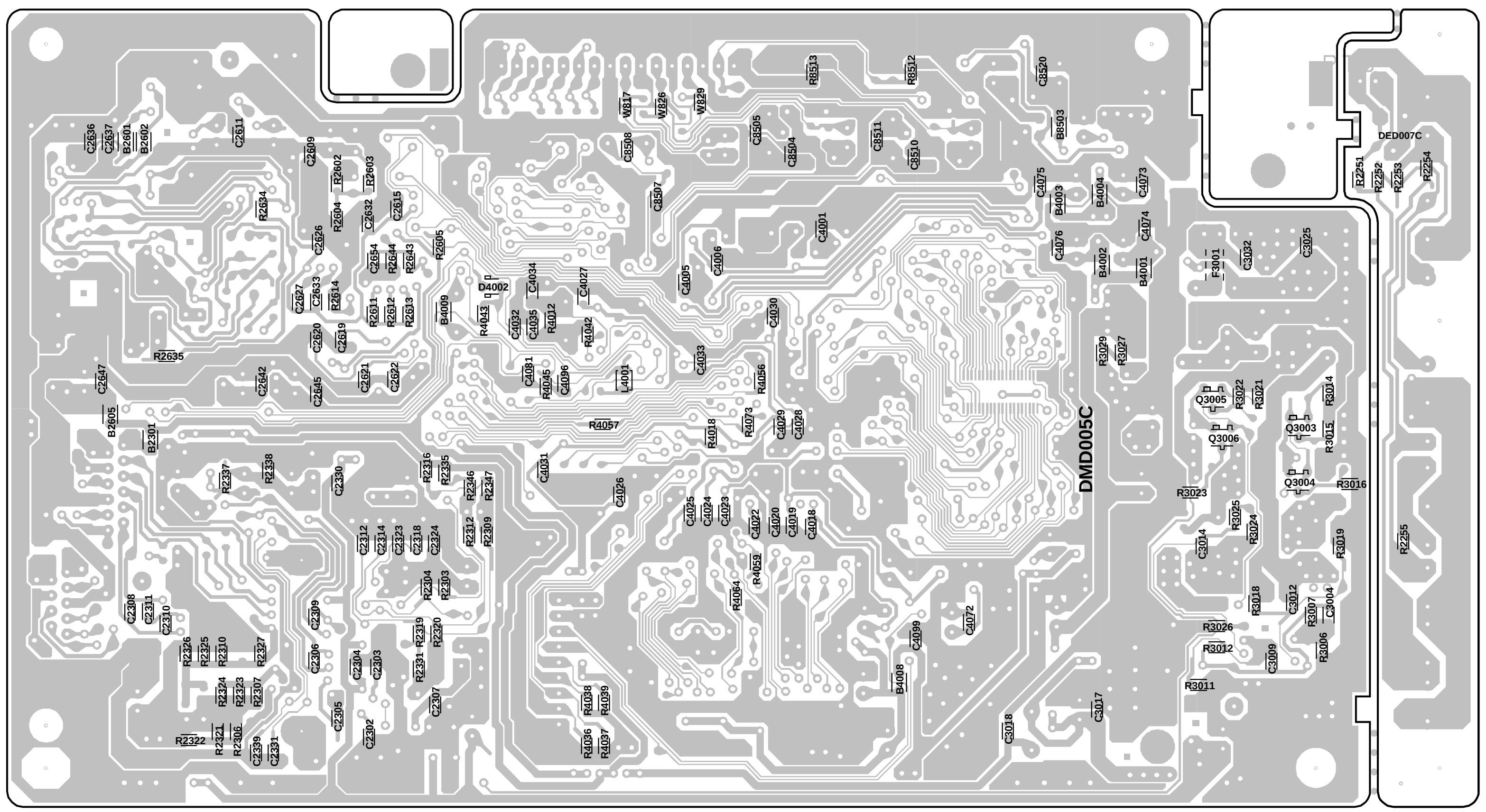


PRINTED CIRCUIT BOARDS
DVD/OPERATION2 (TOP SIDE)



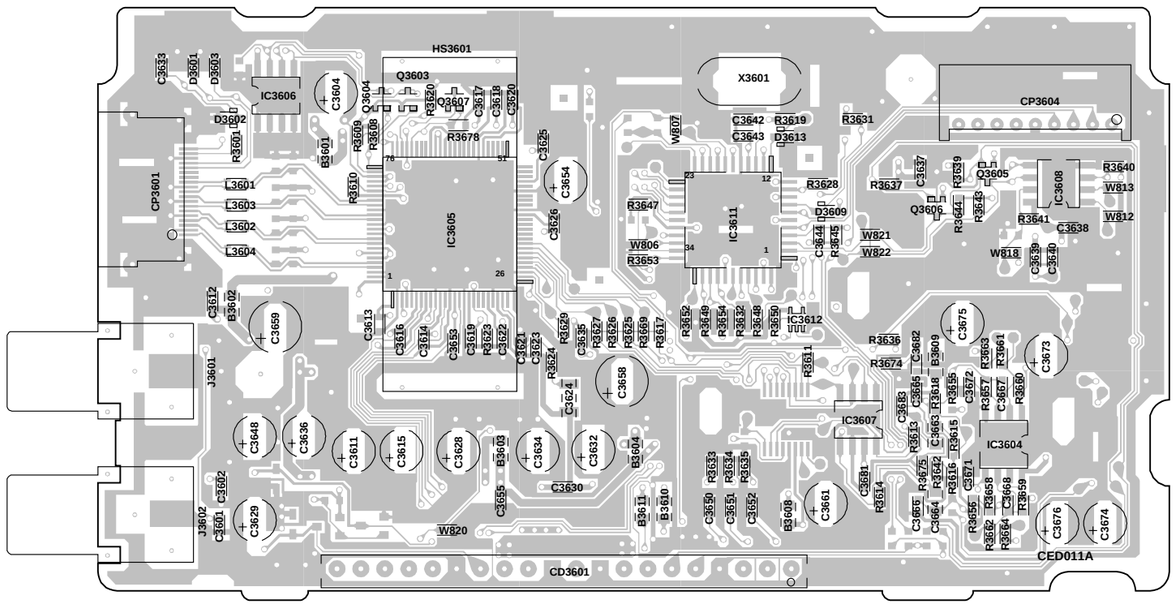
DMD005C
DED007C
IC2301
HS2301
CP2301
CP2302
CP2601
IC2304
IC2601
IC4001
IC4002
IC4005
IC4007
IC3001
IC3002
IC3003
IC8502
X4001
CD701
CD501
CP2251
L3001
L3002
L3003
L3004
L8502
L8503
L8504
D3001
D3002
D3003
Q3001
Q3002
Q3007
Q3008
Q2601
Q2602
Q2603
Q2604
Q2605
Q2606
SW2251_2
SW2254_2
SW2255_2
SW2252_2
SW2253_2
C3001
C3011
C3015
C3020
C4051_1
C4052_1
C4078_1
C4067_1
C4083_1
C4011_1
C4063_1
C8523
C8522
C8524
C8521_1
C8519_1
C2320_1
C2321_1
C2322_1
C2325_1
C2333_1
C2334_1
C2329_1
C2646_1
C2643_1
C2644_1
C2640_1
C2641_1
C2608

DVD/OPERATION2 (BOTTOM SIDE)

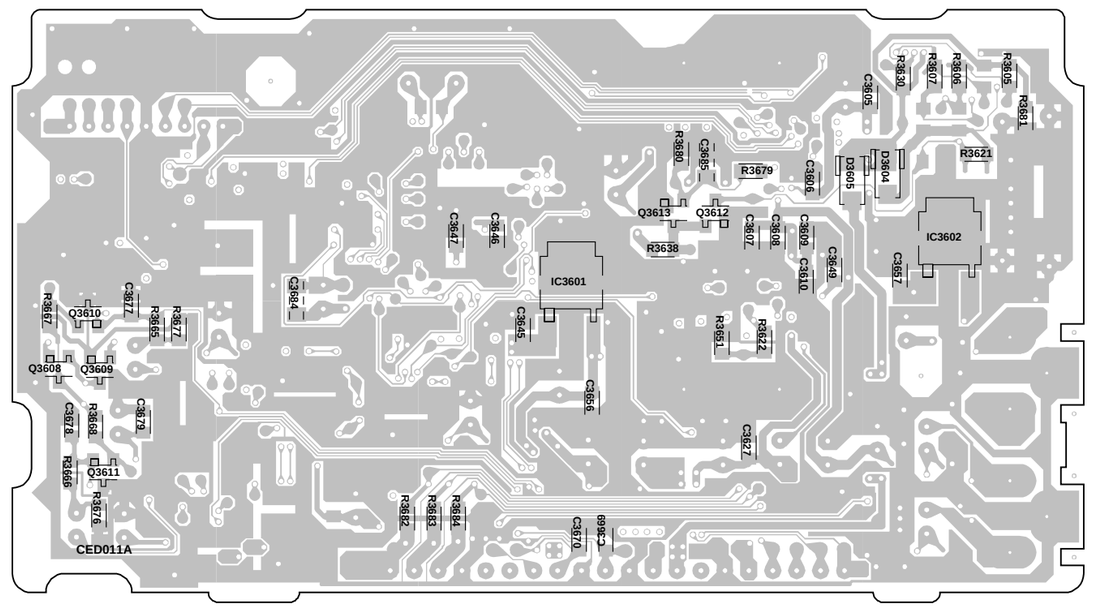


PRINTED CIRCUIT BOARDS

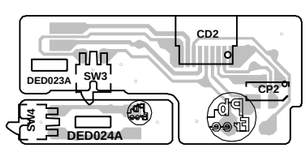
HD-MI (TOP SIDE)



HD-MI (BOTTOM SIDE)

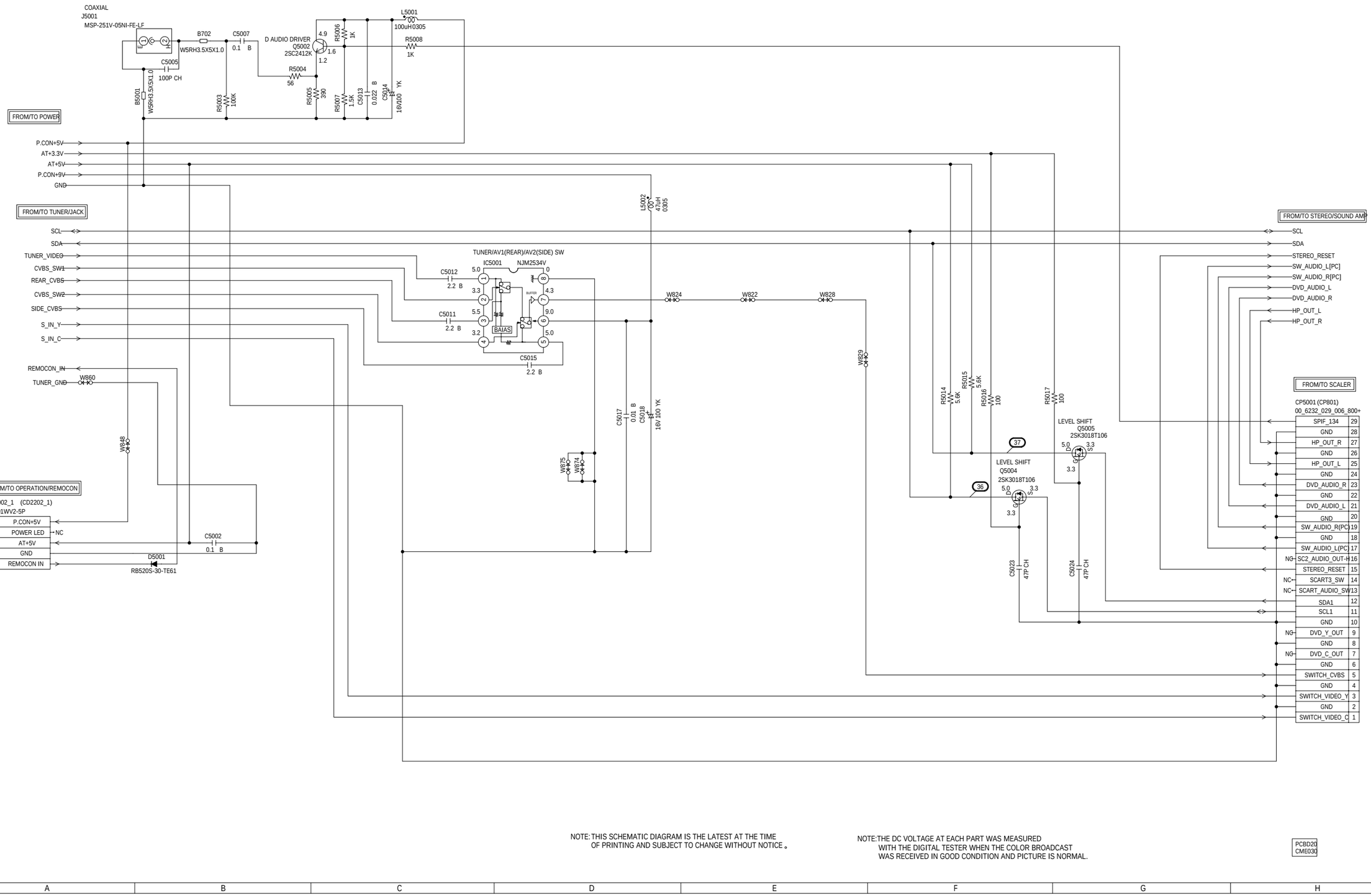


START SW/END SW
SOLDER SIDE



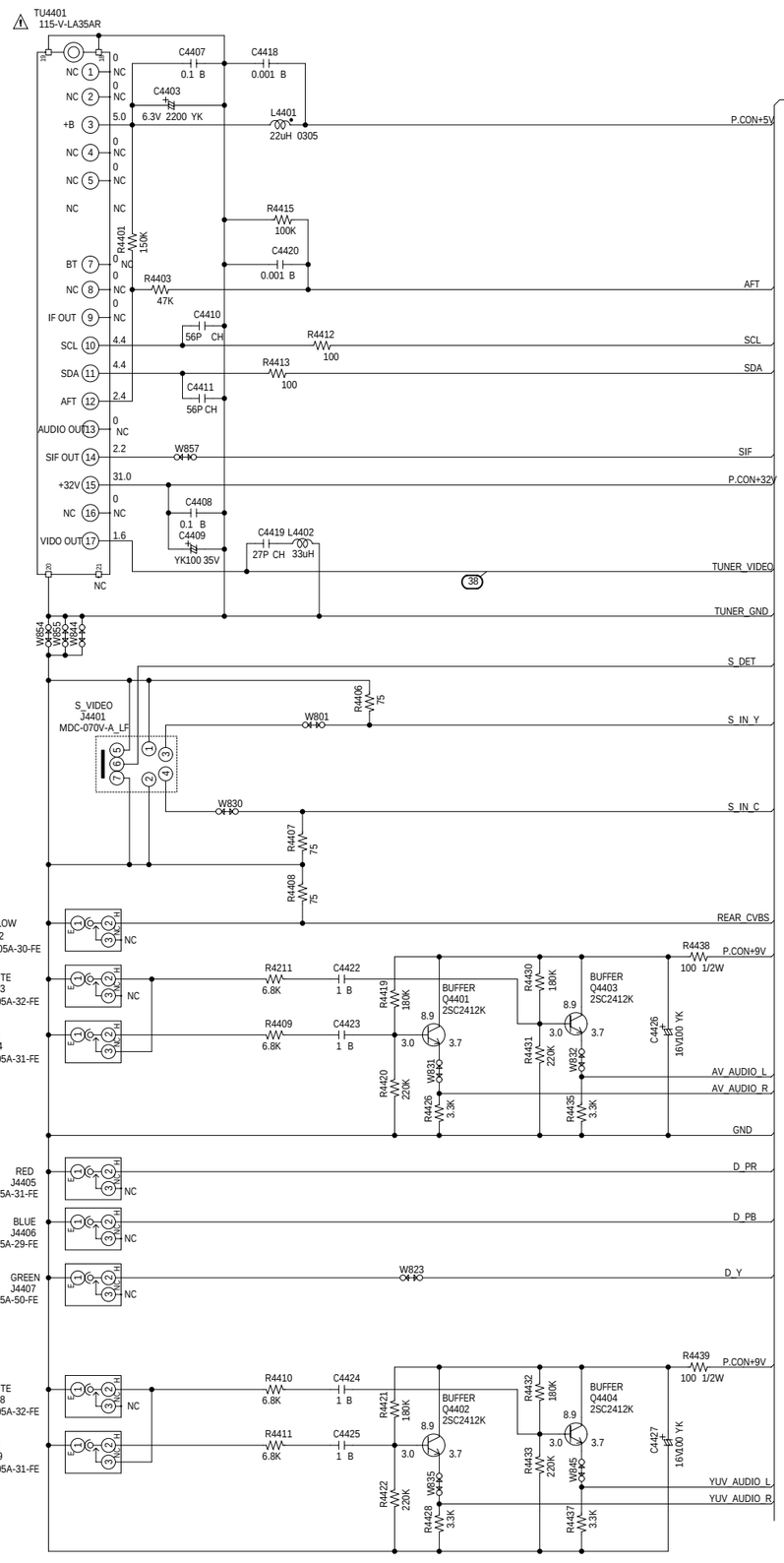
AV SWITCH1 SCHEMATIC DIAGRAM

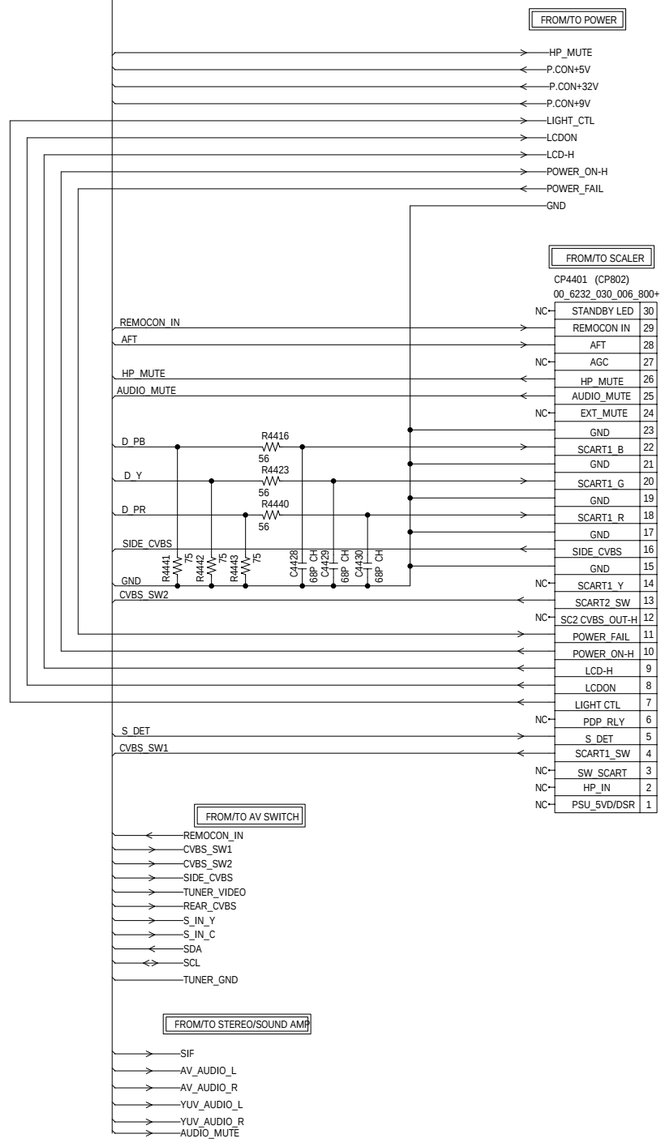
(AV PCB)



TUNER/JACK SCHEMATIC DIAGRAM

(AV PCB)





NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

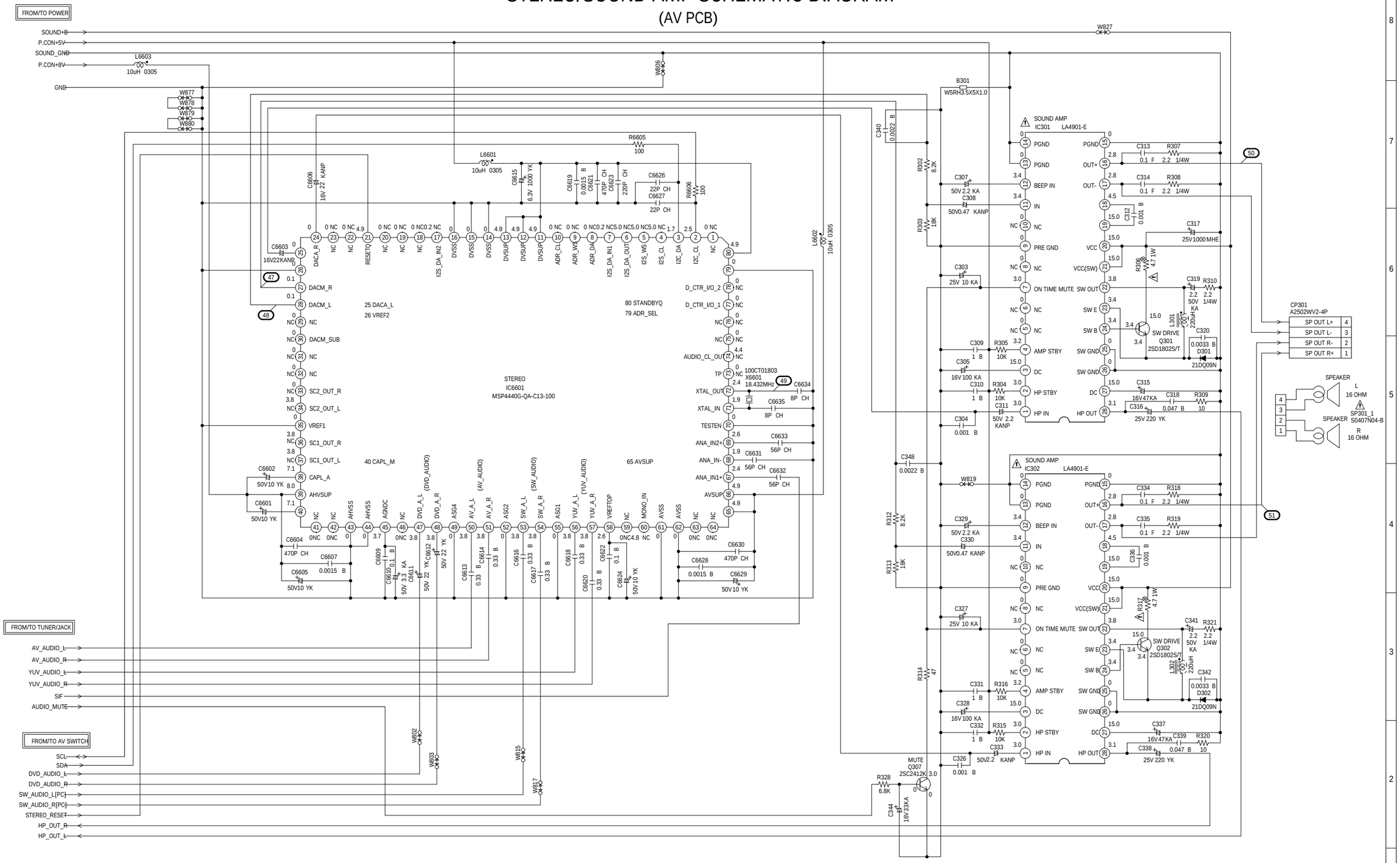
CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

PCBD20
CME030

STEREO/SOUND AMP SCHEMATIC DIAGRAM

(AV PCB)



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

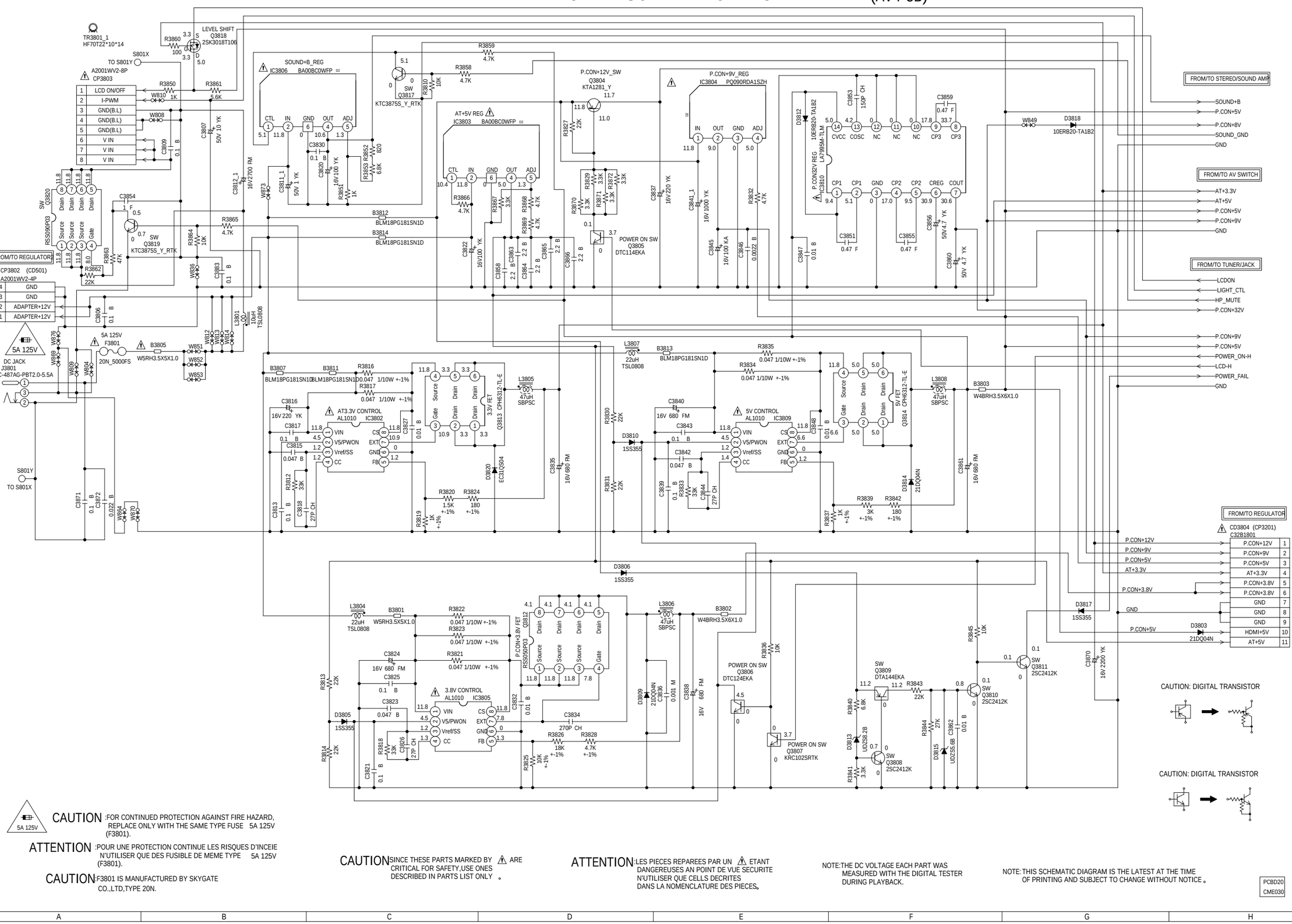
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

PCBD20
CME030

POWER SCHEMATIC DIAGRAM (AV PCB)



CAUTION :FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE 5A 125V (F3801).

ATTENTION :POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEIE N'UTILISER QUE DES FUSIBLE DE MEME TYPE 5A 125V (F3801).

CAUTION:F3801 IS MANUFACTURED BY SKYGATE CO.,LTD,TYPE 20N.

CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION:LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

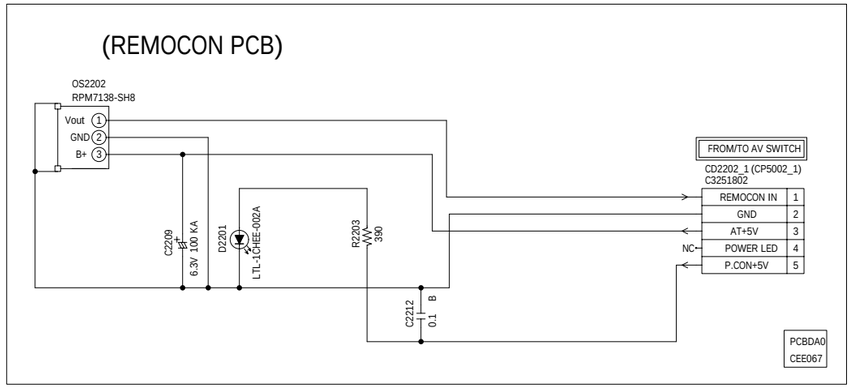
NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

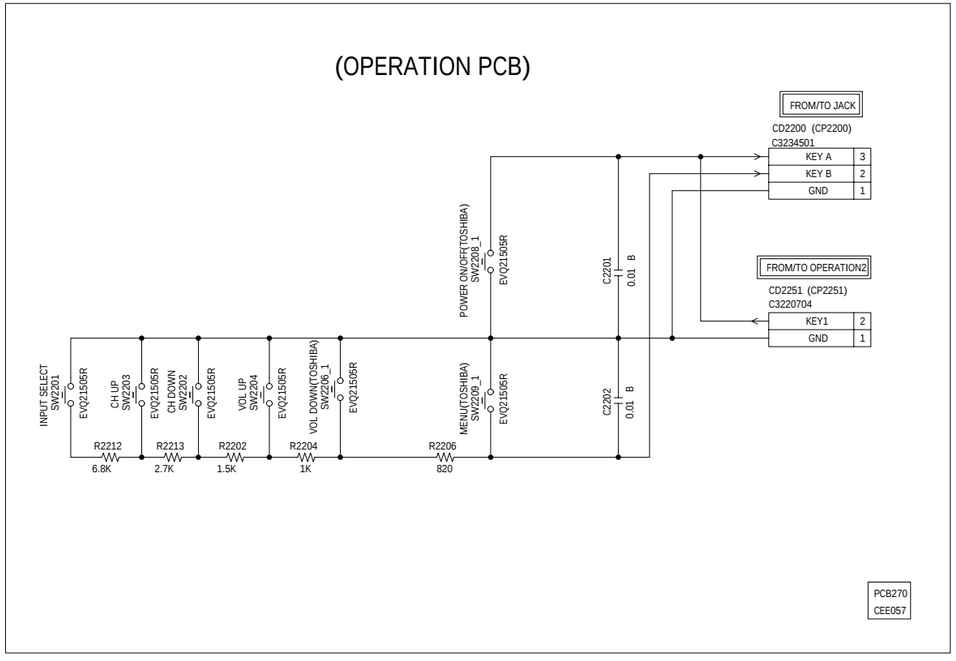
PCBD20
CME030

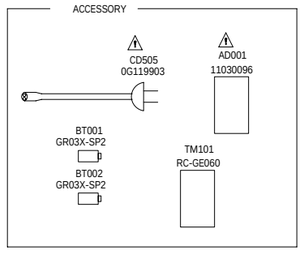
OPERATION1/REMOCON SCHEMATIC DIAGRAM

(REMOCON PCB)



(OPERATION PCB)





NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION : LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

MICOM SCHEMATIC DIAGRAM

(SCALER PCB)

FROM/TO SCALER

REMOCON_IN
AFT
AGC
SCART2_SW
SCART1_SW
SCART1_Y
EXT_MUTE-H
POWER_FAIL
POWER_ON-H
LCD-H
LCDON
LIGHT_CTL
HP_MUTE
STEREO_RESET
SDA1
SCL1
AUDIO_MUTE
SCALER_RESET
4SI_SCL
4SI_SDA_IN
4SI_SDA_OUT
4SI_CHIP_SE
S_DET
SW_SCART
SCART_AUDIO_SW
PSU_5VD/DSR
DVS

FROM/TO ADC

SCL1
SDA1

FROM/TO REGULATOR

GND
AT+3.3V
P.CON+3.3V
HDMI_ON/OFF
SCALER-H
P.CON+5V
AT+5V

FROM/TO AV SWITCH2

DVD/YUV_SW
C_SYNC
SD_SW1
VGA/YUV
COMPONENT/HDMI
SCL1
SDA1
SYNC_HD

AGC
PSU_5VD/DSR
SCART_AUDIO_SW
HEADPHONE_IN
HP_MUTE
SCART1_SW
SCART2_SW
SCART1_Y
DVS

C127 0.1 B
C116 220 6.3V V-S
C117 0.1 F
R132 100
R133 100
R159 4.7K
C123 0.1 B
D106 UDZS5.6B
D101 UDZS5.6B
C106 0.1 B
R158 10K
R102 10K
C104 1 B
JG137
R103 4.7K
R104 4.7K
C101 220 6.3V V-S
C107 0.1 F

JG114 JG113

75 HP_IN
76 SCALER-H
98 NC
99 NC
100 SCALER_RESET

50 SC2_CVBS_OUT-H
49 SC2_AUDIO_OUT-H
48
47

28 SDA1
27 SCL1
26 NC

IC101
MICOM
OEC7133A

R136 4.7K
R137 4.7K
R141 100
R142 100
R147 100
R148 100
R134 1K
R120 1K
R121 1K
R123 1K
R122 4.7K
R126 1K
R119 4.7K

AUDIO_MUTE
EXT_MUTE-H
EEPROM_SCL
EEPROM_SDA
DVD/YUV_SW
SD_SW1
HDMI/DVI
VGA/YUV
CVBS/PC
COMPONENT/HDMI
HDMI_ON/OFF
RTS0
CLK0
DVD_RX&RX
DVD_TX&TX

P.CON+5V
Q105 DTA124EKA
Q101 DTC124EKA
R151 10K
STEREO_RESET

FROM/TO JACK

CVBS/PC
DVD_POWER
HEADPHONE_IN
DVD_RX&RX
DVD_TX&TX
START_SW
DVD_RESET
HDMI/DVI
COMPONENT/HDMI
KEY-A
KEY-B

PC_CONTROL
CP103
A2001WV2-6P

RESET	6
CHIP_SELECT	5
4SI_SCL	4
4SI_SDA_IN	3
4SI_SDA_OUT	2
GND	1

CP101
A2001WV2-5P

GND	1
EEPROM_SCL	2
EEPROM_SDA	3
IIC_OFF	4
GND	5

JG135 SDA2
JG136 SCL2

R105 4.7K
R107 4.7K
R139 4.7K
R109 10K
R112 1K
R115 100
R117 4.7K
R116 4.7K
R114 100
R135 10K
R118 4.7K
R129 4.7K
R154 4.7K
R156 4.7K
R155 4.7K
R157 4.7K
R160 10K
R161 4.7K
R106 4.7K

C113 0.1 F
C109 0.1 B
C110 6.3V 220 V-S
X101 16MHz 100WTD1611
C118 0.1 B
C111 18P CH
C114 18P CH
C139 1 B
C128 0.1 F
C125 6.3V 100 V-S
C126 0.01 B
C131 50V0.47 V-S
C136 50V2.2 V-S
D109 RB520S-30-TE61
D105 RB520S-30-TE61
W907
W820
JG112
JG116
JG118
JG132
JG134
14

RESET IC
IC102 PST3229NR
3.4OUT 3.4IN GND

R152 4.7K
R153 4.7K

ROM WRITER
MICON_DATA
CP102 A2001WV2-10P

GND	1
TX	2
BUSY	3
NC	4
VCC	5
CLK	6
RX	7
CNVSS	8
RESET	9
GND	10

EEP ROM IC 64K
IC104 BR24L64F-WE2
SDA SCL TEST VCC A0 A1 A2 VSS

CAUTION: DIGITAL TRANSISTOR

CAUTION: DIGITAL TRANSISTOR

NOTE:THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

PCBDS0
CEE082

SCALER SCHEMATIC DIAGRAM

(SCALER PCB)

FROM/TO TUNER/JACK

CP802 (CP4401)
00 6232 030 006 800+

CD802
2H0U0802

1		NC
2	REMOCON IN	REMOCON_IN
3	AFT	AFT
4	AGC	AGC
5	HP_MUTE	W880 HP_MUTE
6	AUDIO_MUTE	AUDIO_MUTE
7	EXT_MUTE-H	W821 EXT_MUTE-H
8	GND	
9	SCART1_B	SCART1_B_IN
10	GND	
11	SCART1_G	SCART1_G_IN
12	GND	
13	SCART1_R	SCART1_R_IN
14	GND	
15	SIDE_CVBS	SIDE_CVBS
16	GND	
17	SCART1_Y	SCART1_Y
18	SCART2_SW	SCART2_SW
19		NC
20	POWER_FAIL	POWER_FAIL
21	POWER_ON-H	POWER_ON-H
22	LCD-H	W875 LCD-H
23	LCDON	W824 LCDON
24	LIGHT CTL	LIGHT_CTL
25		NC
26	S_DET	S_DET
27	SCART1_SW	SCART1_SW
28	SW_SCART	SW_SCART
29		NC
30	PSU_5VD/DSR	PSU_5VD/DSR

FROM/TO AV SWITCH

CP801 (CP5001)
00 6232 029 006 800+

1	SPIF_134	SPIF_134
2	GND	GND
3	HP_OUT_R	W862 HP_OUT_R
4	GND	
5	HP_OUT_L	W861 HP_OUT_L
6	GND	
7	DVD_AUDIO_R	DVD_A_OUT_R
8	GND	
9	DVD_AUDIO_L	DVD_A_OUT_L
10	GND	
11	SW_AUDIO_R(PC)	SW_AUDIO_R[PC]
12	GND	
13	SW_AUDIO_L(PC)	SW_AUDIO_L[PC]
14		NC
15	STEREO_RESET	STEREO_RESET
16		NC
17	SCART_AUDIO_SW	SCART_AUDIO_SW
18	SDA1	SDA1
19	SCL1	SCL1
20	GND	
21	DVD_Y_OUT	DVD_Y_OUT
22	GND	
23	DVD_C_OUT	DVD_C[V]_OUT
24	GND	
25	SWITCH_CVBS	W913 W802 SW_CVBS
26	GND	
27	SWITCH_VIDEO_Y	W914 W809 SW_VIDEO_Y
28	GND	
29	SWITCH_VIDEO_C	W912 W801 SW_VIDEO_C

FROM/TO JACK

SPIF_134
DVD_A_OUT_R
DVD_A_OUT_L
SW_AUDIO_R[PC]
SW_AUDIO_L[PC]
HP_OUT_L
HP_OUT_R
SIDE_CVBS

FROM/TO AV SWITCH2

DVD_C[V]/SW_PR
DVD_Y_OUT
DVD_C[V]_OUT
DVD_Y/SW_Y
DVD_U/SW_PB
SCART1_R_IN
SCART1_G_IN
SCART1_B_IN
SW_CVBS
SW_VIDEO_Y

SCALER
IC801
R8J66604A71FP

NOTE:THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

FROM/TO MICOM

REMOCON_IN
AFT
AGC
SCART2_SW
SCART1_SW
SCART1_Y
EXT_MUTE-H
POWER_FAIL
POWER_ON-H
LCD-H
LCDON
AUDIO_MUTE
SDA1
SCL1
SCALER_RESET
4SI_CHIP_SE
4SI_SDA_OUT
4SI_SDA_IN
4SI_SCL
S_DET
SW_SCART
PSU_5VD/DSR
SCART_AUDIO_SW
DVS

FROM/TO ADC

DDHS
DDVS
DDCK
DPG7
DPG6
DPG5
DPG4
DPG3
DPG2
DPG1
DPG0
DPR7
DPR6
DPR5
DPR4
DPR3
DPR2
DPR1
DPR0
DPB7
DPB6
DPB5
DPB4
DPB3
DPB2
DPB1
DPB0

FROM/TO LVDS

DR2
DR3
DR4
DR5
DR6
DR7
DR8
DR9
DB2
DB3
DB4
DB5
DB6
DB7
DB8
DB9
DG2
DG3
DG4
DG5
DG6
DG7
DG8
DG9
DCLK1
DVS
DHS
DEN

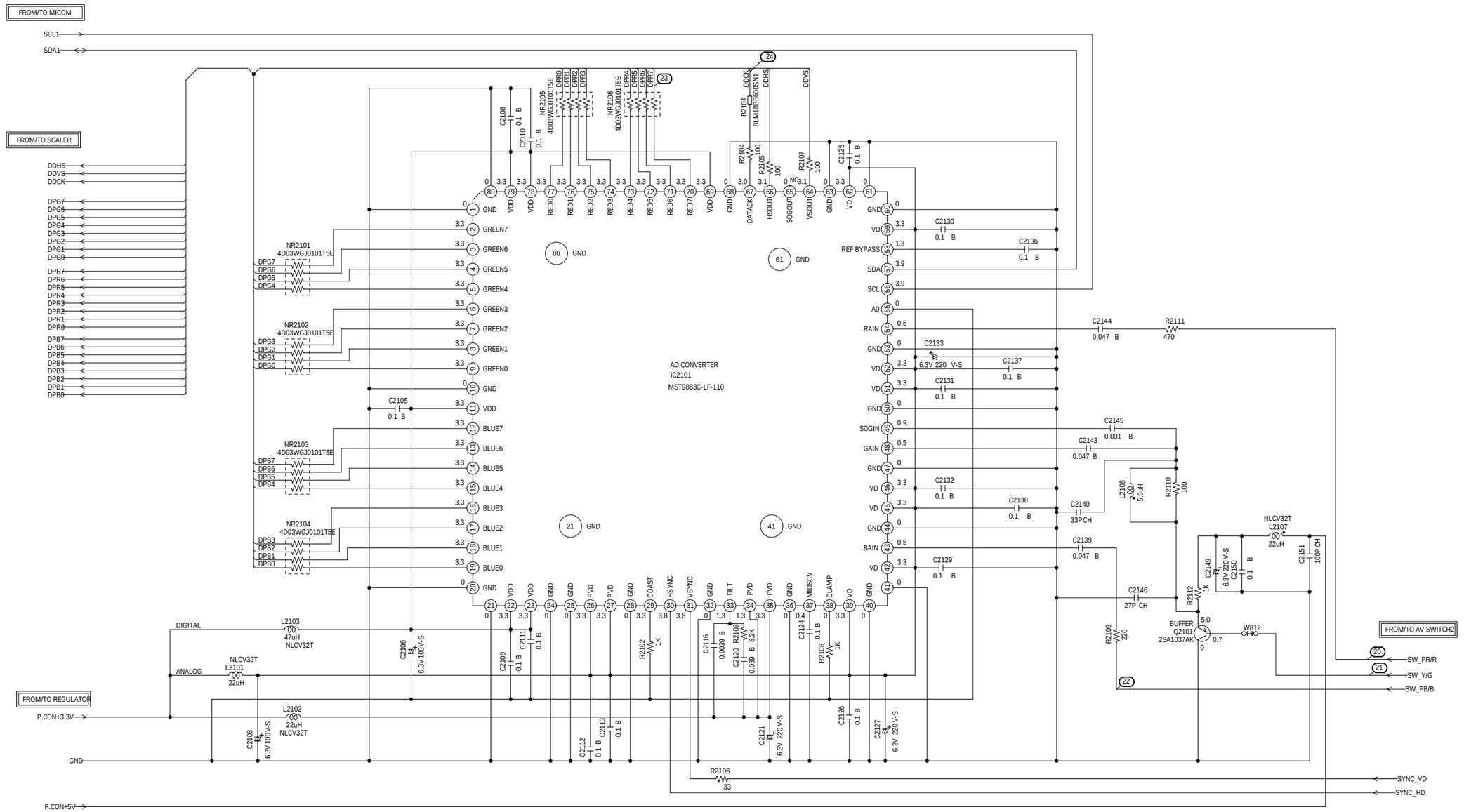
FROM/TO REGULATOR

P.CON+1.8V
P.CON+3.3V
GND

PCBDSC
CEE082

ADC SCHEMATIC DIAGRAM

(SCALER PCB)



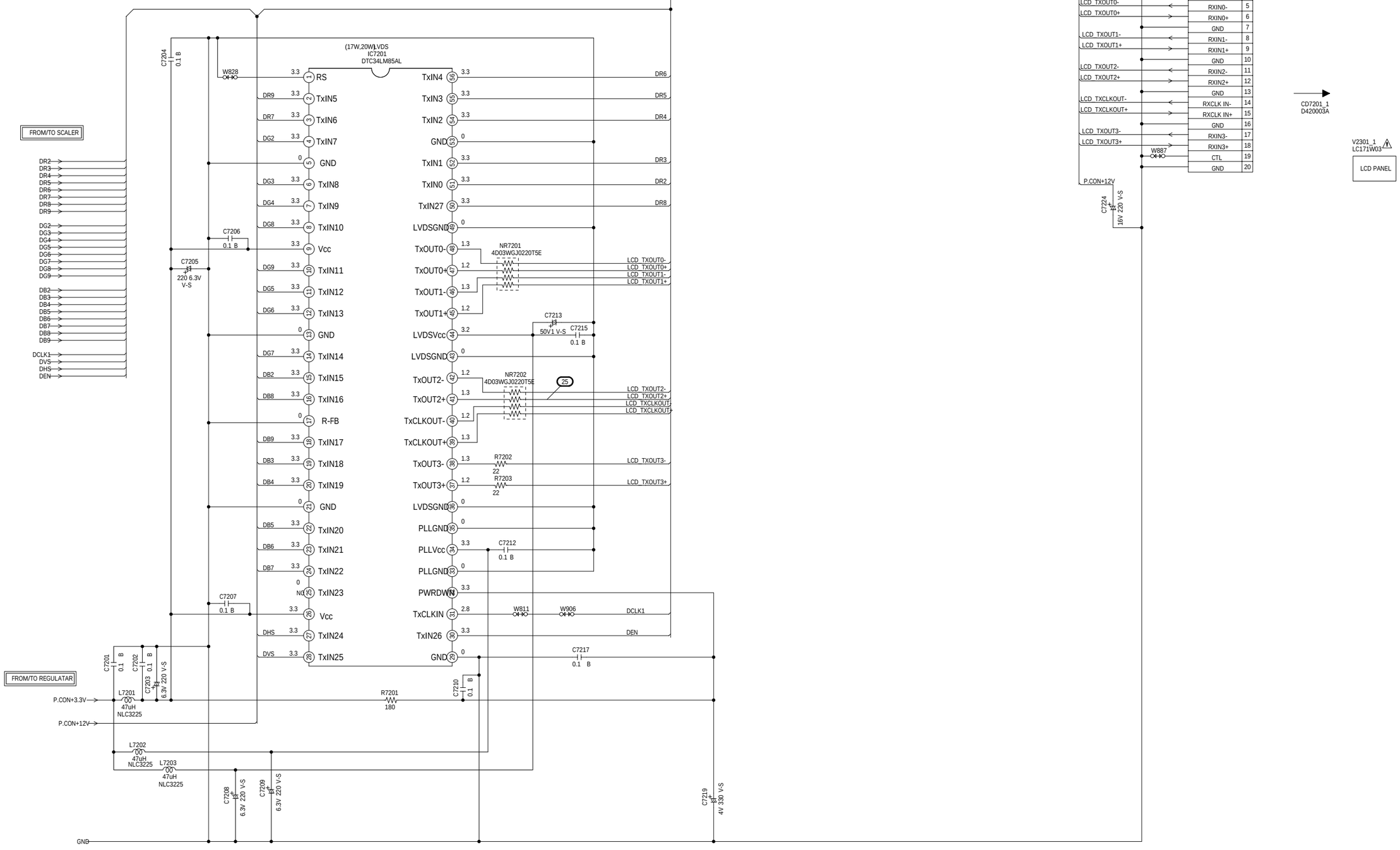
NOTE:THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

PCBDSO
CEE082

LVDS SCHEMATIC DIAGRAM

(SCALER PCB)



CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION:LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

NOTE:THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

PCBDSC CEE082

JACK SCHEMATIC DIAGRAM (SCALER PCB)

CAUTION: DIGITAL TRANSISTOR

CAUTION: DIGITAL TRANSISTOR

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

HEADPHONE JACK
J4301
HSJ0913-01-140

R4301 10K (W128) R4307 10K
B4301 MMZ1608R102CT
B4302 MMZ1608R102CT

J4306 YELLOW MTJ-032-05A-30-FE
J4302 WHITE MTJ-032-05A-32-FE
J4303 RED MTJ-032-05A-31-FE
J4304 WHITE MTJ-032-05A-32-FE
J4305 RED MTJ-032-05A-31-FE

D-SUB
CP4302
1-1734344-1

1	VGA-R	→
2	VGA-G	→
3	VGA-B	→
4	NC	→ NC
5	DGND	
6	AGND	
7	AGND	
8	AGND	
9	NC	→ NC
10	DGND	
11	NC	→ NC
12	DDCD	→ NC
13	VGAHS	→
14	VGAVS	→
15	DDCC	→ NC

FROM/TO INTERFACE
CP4301 (CD3601)
A2501WV2-20P

1	Pb	← HDMI_PB
2	Y	← HDMI_Y
3	Pr	← HDMI_PR
4	GND	
5	TX	→ NC
6	RX	→ NC
7	+12V	← P.CON+12V
8	DAC_A-L	← HDMI_A_IN_L
9	GND	
10	DAC_A-R	← HDMI_A_IN_R
11	GND	
12	+4V	← HDMI_VNREG+5V
13	+5V	← HDMI+5V
14	AUDIO-L	← DVI_A_IN_L
15	GND	
16	AUDIO-R	← DVI_A_IN_R
17	GND	
18	HDMI_1/2	→ NC
19	V-SYNC	→ NC
20	H-SYNC	→ NC

CVBS/PC
P.CON+3.3V
HEADPHONE_IN
HP_OUT_L
HP_OUT_R
PC_A_IN_R
CVBS_A_IN_R
SIDE_CVBS
PC_A_IN_L
CVBS_A_IN_L
P.CON+9V
HDMI_A_IN_R
HDMI_A_IN_L
HDMI/DVI
DVI_A_IN_R
DVI_A_IN_L
COMPONENT/HDMI
VGA-R
VGA-G
VGA-B
VGAHS
VGAVS
ZERO
DVD_A_OUT_R
DVD_A_OUT_L

PC/YUV Rch SW IC4301 MM1501XNRE
PC/YUV Lch SW IC4302 MM1501XNRE
YUV/HDMI/DVI Rch SW IC4305 NJM2534V
YUV/HDMI/DVI Lch SW IC4304 NJM2534V
AUDIO_AMP NJM4580M

NLCV32T L4307 22uH P.CON+9V
NLV32T L4306 22uH P.CON+9V
L4301 47uH NLC3225

BUFFER Q4301 2SC2412K
BUFFER Q4302 2SC2412K
BUFFER Q4304 2SC2412K
BUFFER Q4305 2SC2412K

MUTE SW Q4306 DTC144EKA
MUTE SW. Q4308 KRA101SRTK
MUTE SW Q4303 2SC2412K
MUTE SW. Q4309 KRC103SRTK
MUTE SW Q4307 2SC2412K

BAIAS

SW_AUDIO_R[PC]
SW_AUDIO_L[PC]
R_AUDIO
L_AUDIO
DVD_AUDIO_R
DVD_AUDIO_L

FROM/TO SCALER
SPIF_134
DVD_A_OUT_R
DVD_A_OUT_L
SW_AUDIO_R[PC]
SW_AUDIO_L[PC]
SIDE_CVBS
HP_OUT_L
HP_OUT_R

FROM/TO MICOM
COMPONENT/HDMI
HDMI/DVI
DVD_RESET
START_SW
DVD_TX&TX
DVD_RX&RX
HEADPHONE_IN
DVD_POWER
KEY-A
KEY-B
CVBS/PC

FROM/TO AV SWITCH2
DVD_C[V]_OUT
DVD_Y_OUT
DVD_U_OUT
HDMI_Y
HDMI_PB
HDMI_PR
VGA-R
VGA-G
VGA-B
VGAHS
VGAVS

FROM/TO OPERATION/REMOCON
CP2200 (CD2200)
A2001WV2-3P

GND	1	
KEY B	2	KEY-B
KEY A	3	KEY-A

D4301 UDZS5.6B
D4302 UDZS5.6B

FROM/TO REGULATOR
P.CON+3.3V
P.CON+12V
HDMI+5V
HDMI_VNREG+5V
P.CON+9V
GND
P.CON+5V

FROM/TO AUDIO/VIDEO
CP4303 (CD701)
A2001WV2-16P

DVD_POWER	16	← DVD_POWER
DVD_RESET	15	← DVD_RESET
START_SW	14	← START_SW
TX	13	← DVD_TX&TX
RX	12	← DVD_RX&RX
ZERO	11	← ZERO
SPIF-134	10	← SPIF_134
GND	9	
[V]C_VIDEO	8	← DVD_C[V]_OUT
GND	7	
[U]_VIDEO	6	← DVD_U_OUT
GND	5	
[Y]Y_VIDEO	4	← DVD_Y_OUT
GND	3	
DVD_A_OUT_L	2	← DVD_AUDIO_L
DVD_A_OUT_R	1	← DVD_AUDIO_R

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

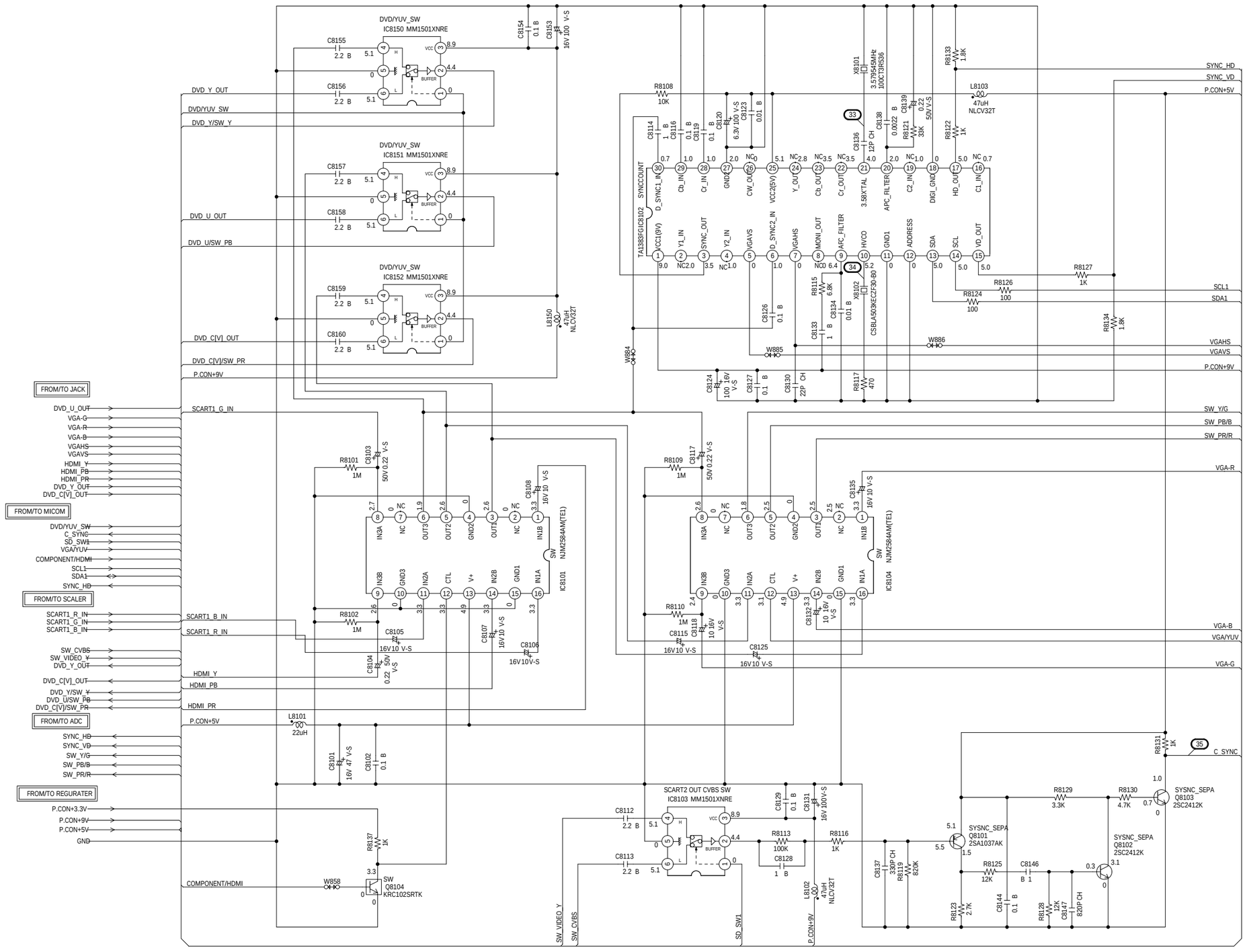
CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

PCBDSD
CEE082

AV SWITCH2 SCHEMATIC DIAGRAM

(SCALER PCB)



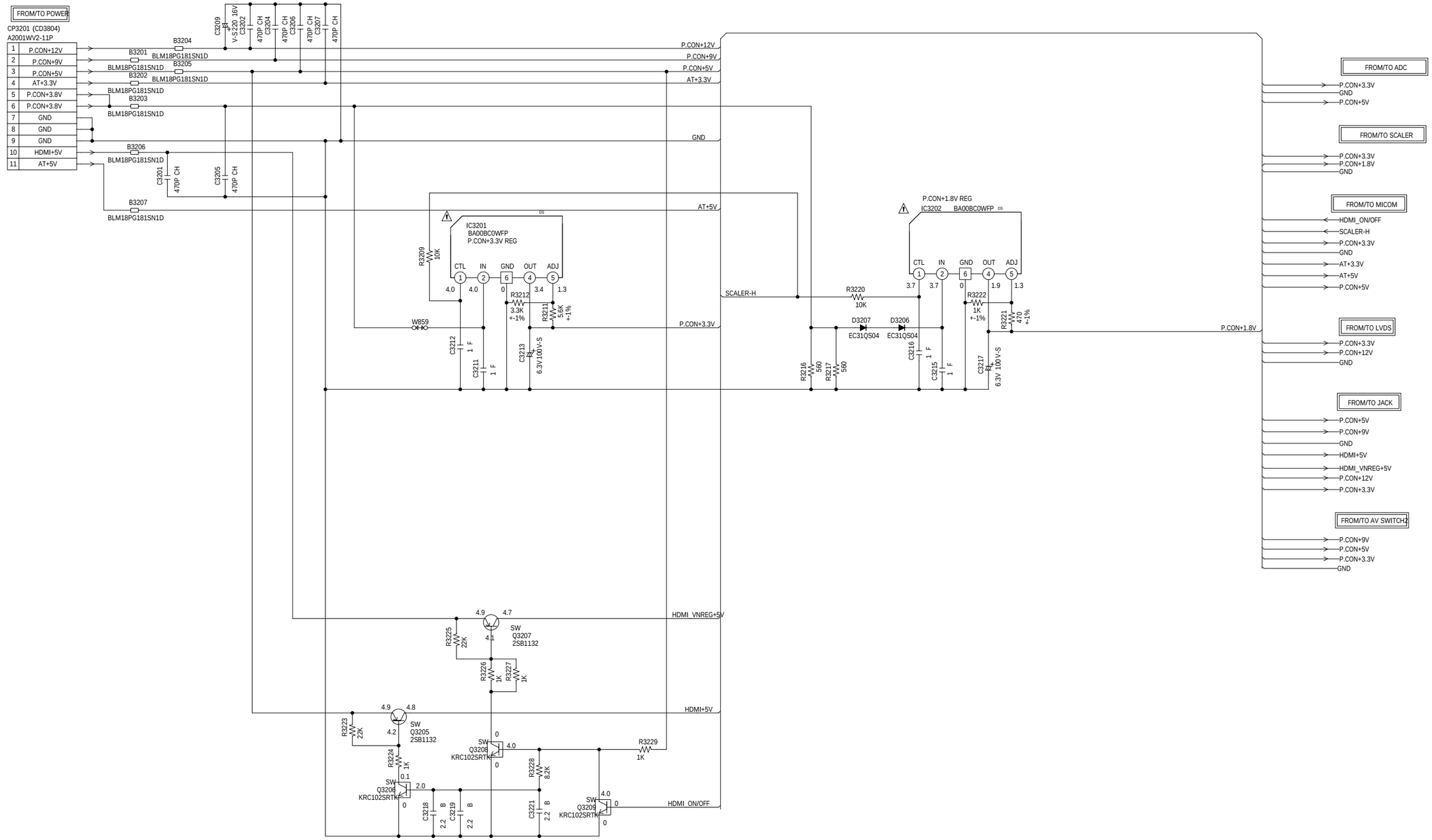
NOTE:THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

PCBDSD CEE082

REGULATOR1 SCHEMATIC DIAGRAM

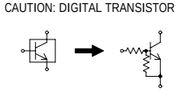
(SCALER PCB)



CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION :LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

CAUTION: DIGITAL TRANSISTOR



NOTE:THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

PCBDS0
CEE082

MPEG/MICON/DSP SCHEMATIC DIAGRAM

(DVD PCB)

MPEG/MICON/DSP
IC4001
ZR36762PQCG_V

FROM/TO MEMORY

FROM/TO AUDIO/VIDEO

FROM/TO RF AMP

FROM/TO MOTOR DRIVE

FROM/TO REGULATOR2

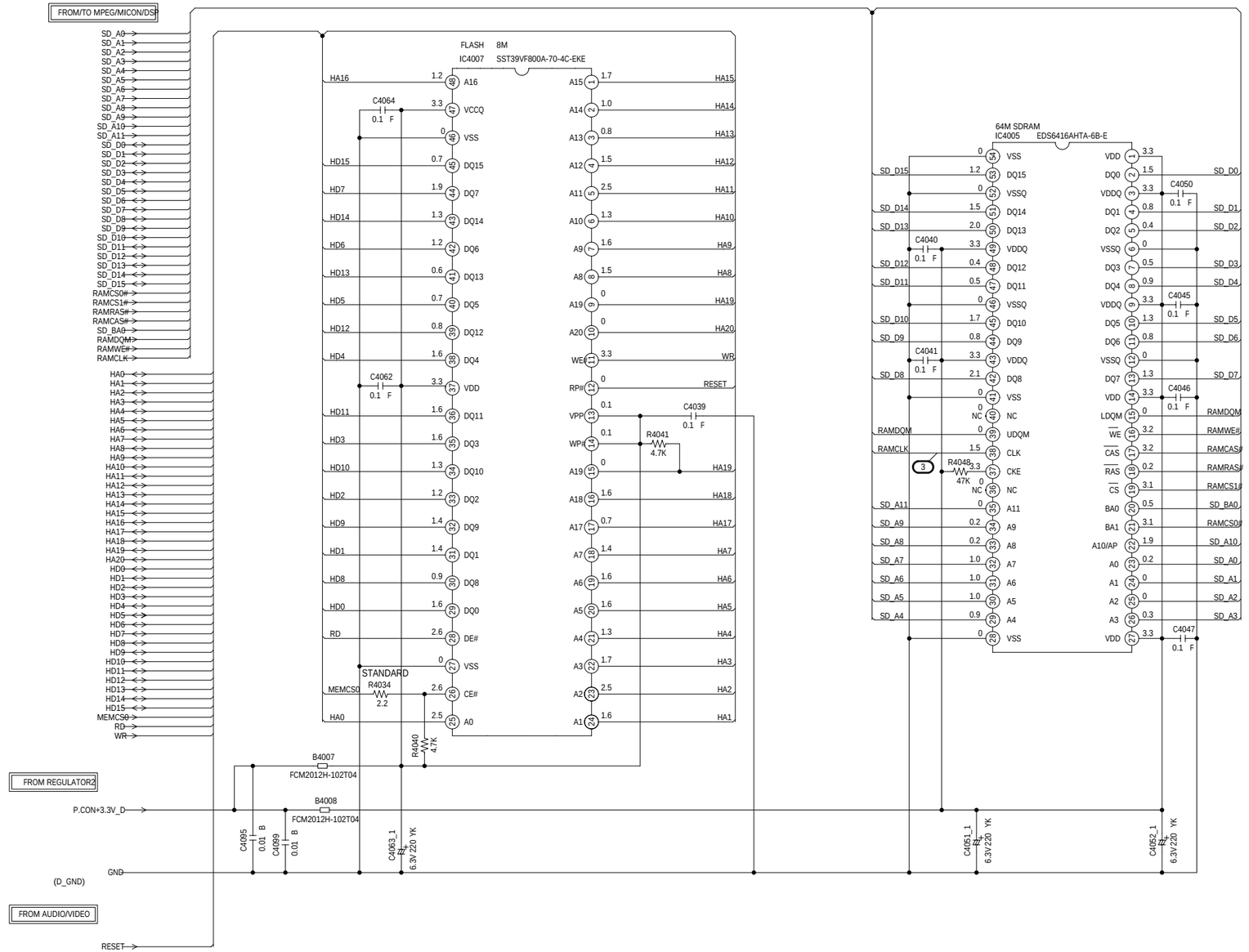
NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

PCB130
DMD005

MEMORY2 SCHEMATIC DIAGRAM

(DVD PCB)



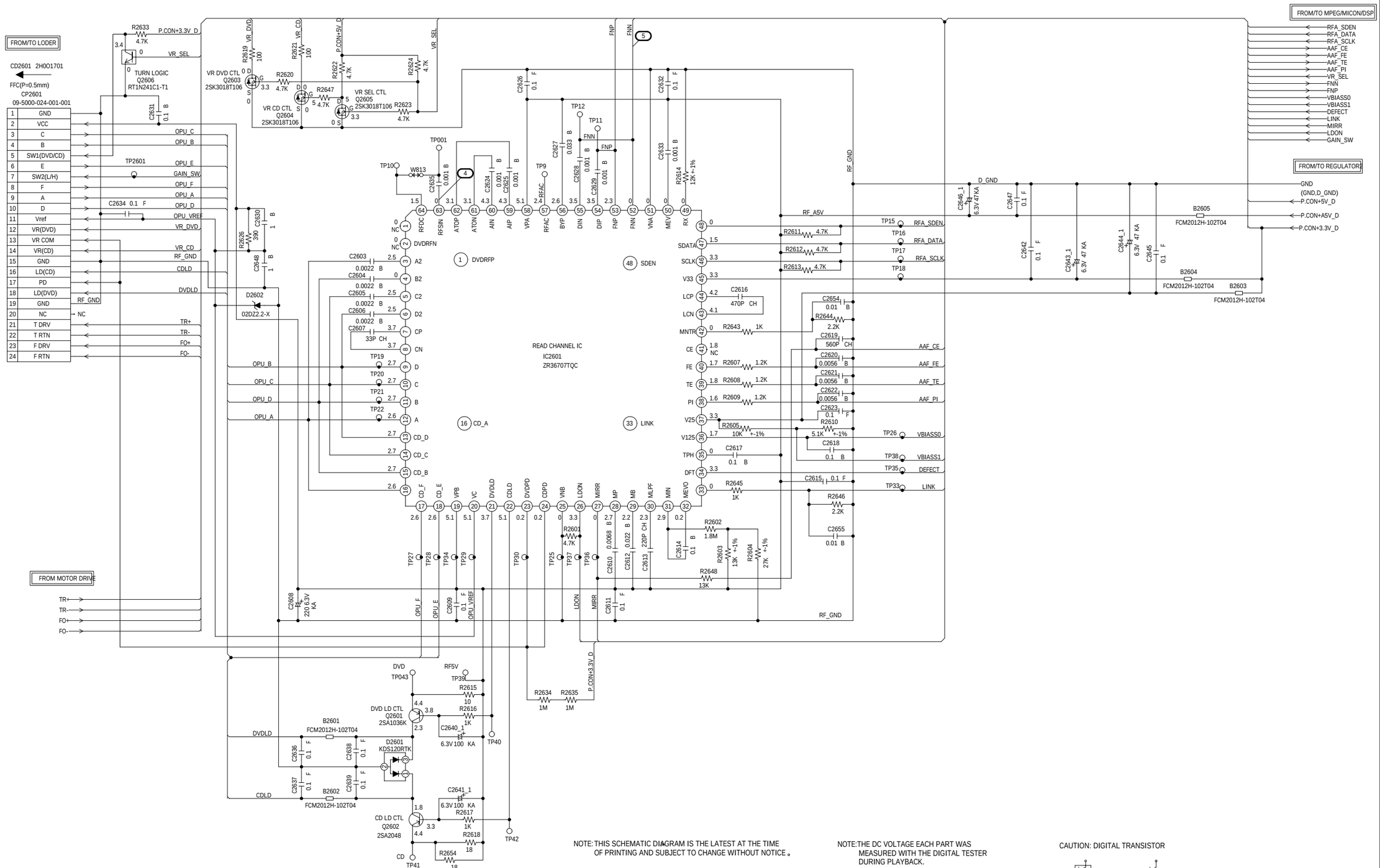
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

PCB130
DMD005

RF AMP SCHEMATIC DIAGRAM

(DVD PCB)



AUDIO/VIDEO SCHEMATIC DIAGRAM

(DVD PCB)

	1	2	3	4
A	Y	G	CVBS	Y
B	V	R	Y	V
C	U	B	C	U
D	C	CVBS	CVBS	CVBS

FROM/TO MPEG/MICON/DSP

DAC_VIDEO_C
DAC_VIDEO_B
DAC_VIDEO_A
RESET
MC
MD
ML
AMCLK
ABCLK
ALRCLK
ASDATA0
SYS_MUTE
DUPTD1
DUPRD1
SPDIF

FROM/TO REGULATOR2

P.CON+5V_D
P.CON+3.5V_D
DVD_POWER_H
GND
(GND,D_GND)

C8522 6.3V 470 YK
C8523 6.3V 470 YK
C8524 6.3V 470 YK

DAC_C[U]C_VIDEO
DAC_B[V]Y_VIDEO
DAC_A[Y]_VIDEO

W818
W819
W820

C8505 12P CH
C8508 12P CH
C8511 12P CH
L8502 1uH 0305
L8503 1uH 0305
L8504 1uH 0305
C8504 150P CH
C8506 150P CH
C8507 150P CH
C8509 150P CH
C8510 150P CH
C8512 150P CH

D_GND

FROM/TO MEMORY2

RESET

B8503 FCM2012H-102T04
C8520 0.1 F
C8519_1 10V 100YK

R8513 2.2
R8512 2.2

STEREO DAC IC8502 PCM1753DBQR

2.4	2.5	4.9	0	NC	0	1.6	1.1	1.6							
8	7	6	5	4	3	2	1								
VOUTR	VOUTL	VCC	VDD	DGND	LRCK	DATA	BCK								
9	10	11	12	13	14	15	16								
AGND	VCOM	ZERO/R/ZEROA	ZERO/L/NA	MD	MC	ML	SCK								
0	2.4	3.3	0	NC	0	0	3.3	1.7							

C8521_1 50V 10 YK
ZERO
MD
MC
ML
AMCLK
ABCLK
ASDATA0
ALRCLK

FROM/TO MOTOR DRIVE

DISC_IN_SW

DUPTD1

D8508 1SS355
LEVEL CONVERT
Q8507 2SC3052
3.2 5.2 3.0
R8529 4.7K
R8555 47K
C8564 10P CH
C8566 47P CH

P.CON+3.3V_D

DVD_AUDIO_L
DVD_AUDIO_R

SYS_MUTE

D8509 1SS355
D8510 1SS355

DVD_POWER_H
RESET
DISC_IN_SW
DUPRD1
RX
ZERO
SPDIF
DAC_B[V]Y_VIDEO
DAC_C[U]C_VIDEO
DAC_A[Y]_VIDEO

W817
W826
W829

FROM/TO JACK

CD701 (CP4303)
C32G2204

DVD POWER	16
DVD_RESET	15
START_SW	14
TX	13
RX	12
ZERO	11
SPDIF-134	10
GND	9
[V]C_VIDEO	8
GND	7
[U]_VIDEO	6
GND	5
[Y]Y_VIDEO	4
GND	3
DVD_A_OUT_L	2
DVD_A_OUT_R	1

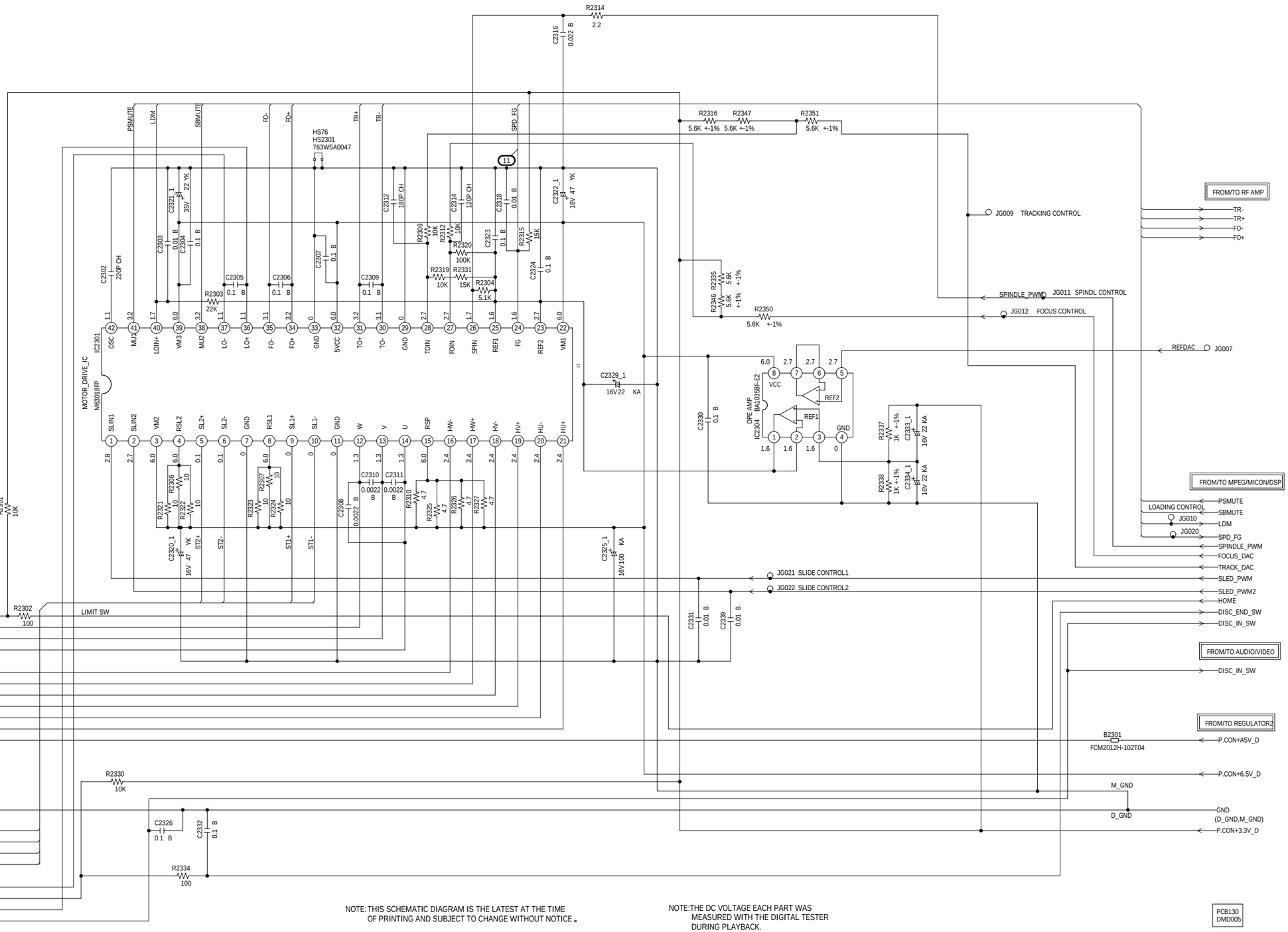
NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

PCB130
DMD005

MOTOR DRIVE SCHEMATIC DIAGRAM

(DVD PCB)



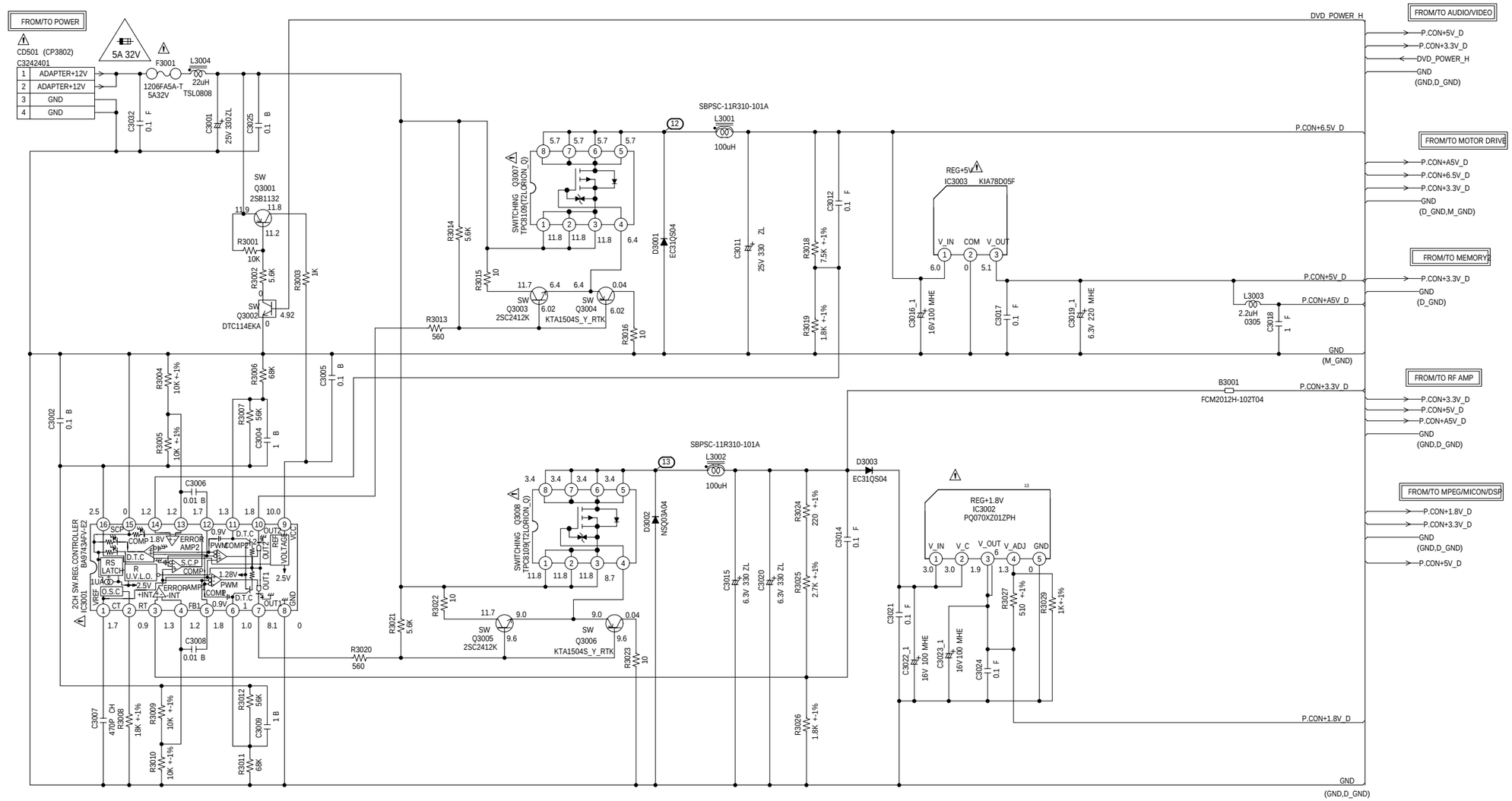
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

PCB130
DMD005

REGULATOR2 SCHEMATIC DIAGRAM

(DVD PCB)



5A 32V

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE 5A 32V (F3001)

ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEIE N'UTILISER QUE DES FUSIBLE DE MEME TYPE 5A 32V (F3001)

CAUTION: F3001 IS MANUFACTURED BY COOPER INDUSTRIES INC., TYPE 1206FA-T.

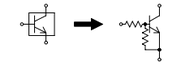
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

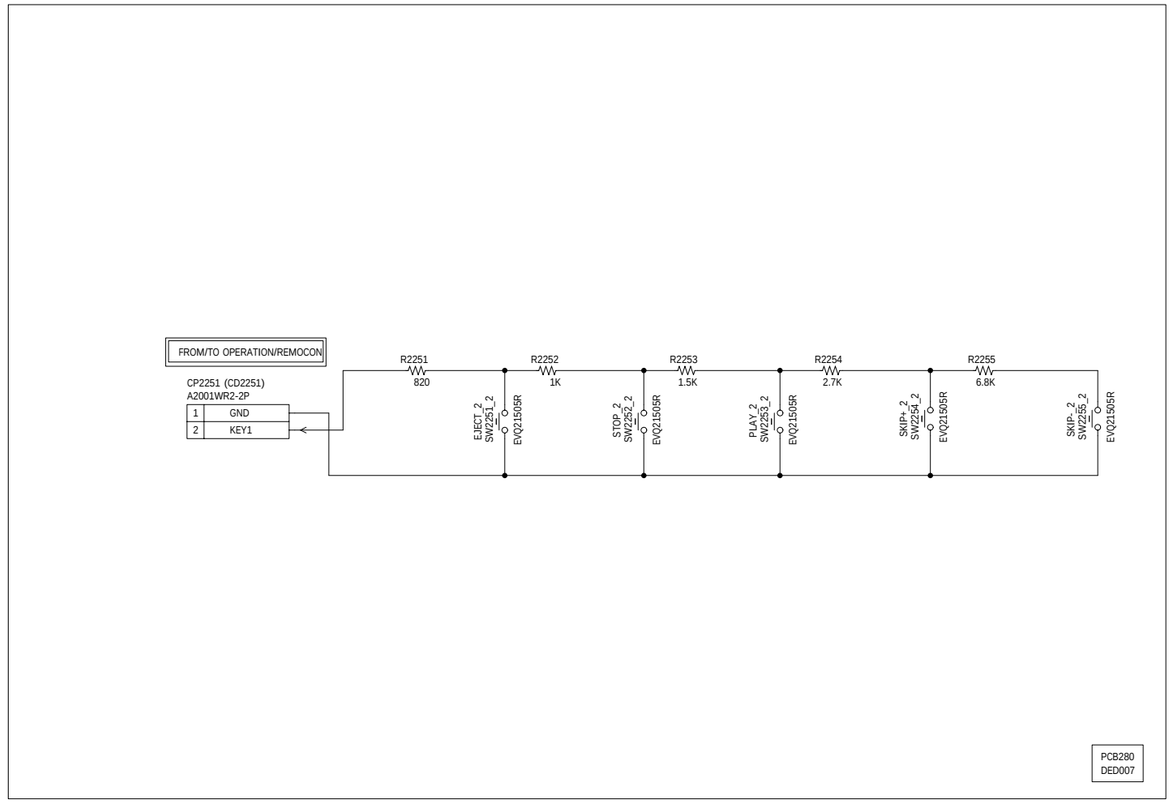
CAUTION: DIGITAL TRANSISTOR



PCB130
DMD005

OPERATION2 SCHEMATIC DIAGRAM

(OPERATION 2 PCB)

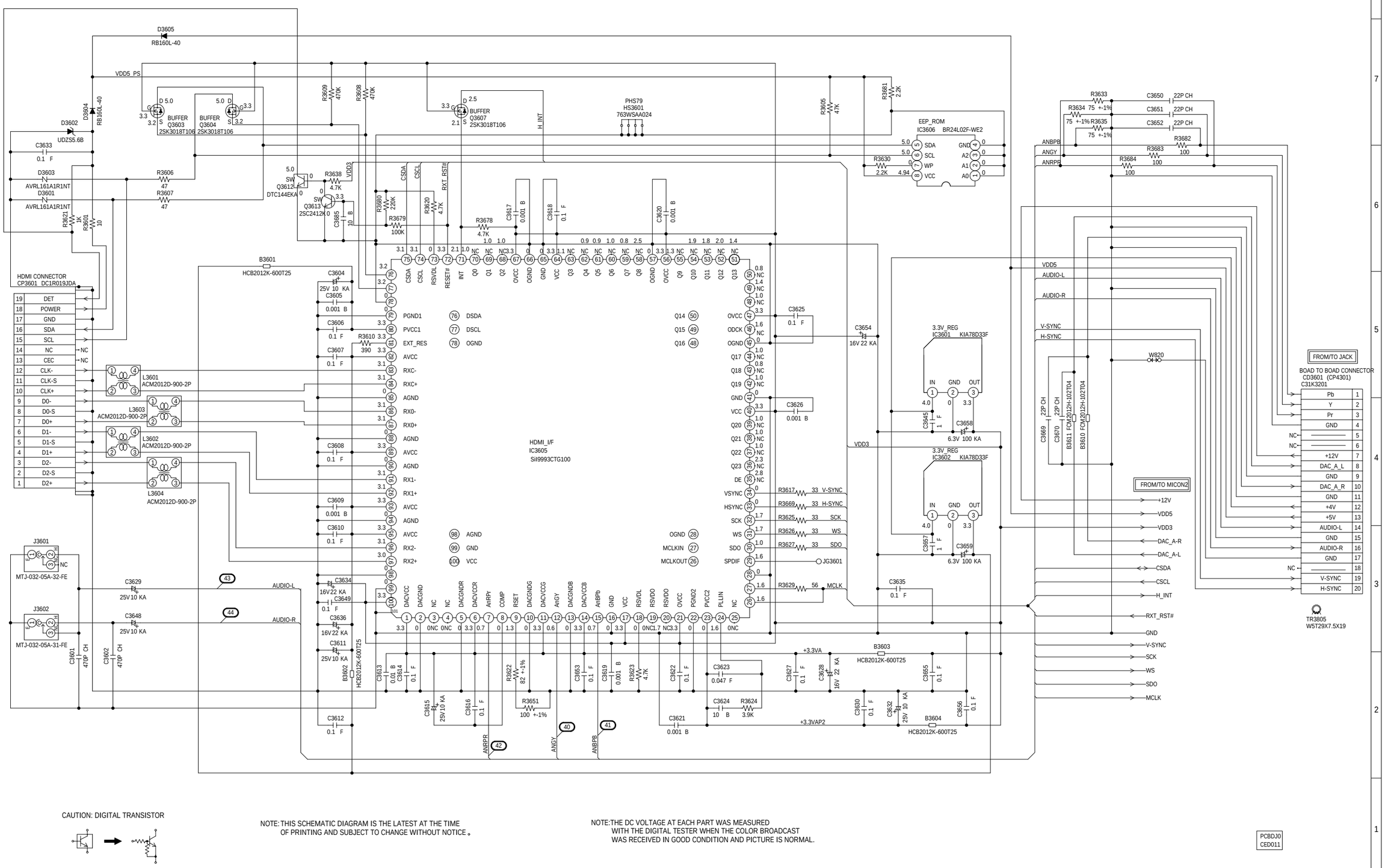


NOTE:THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

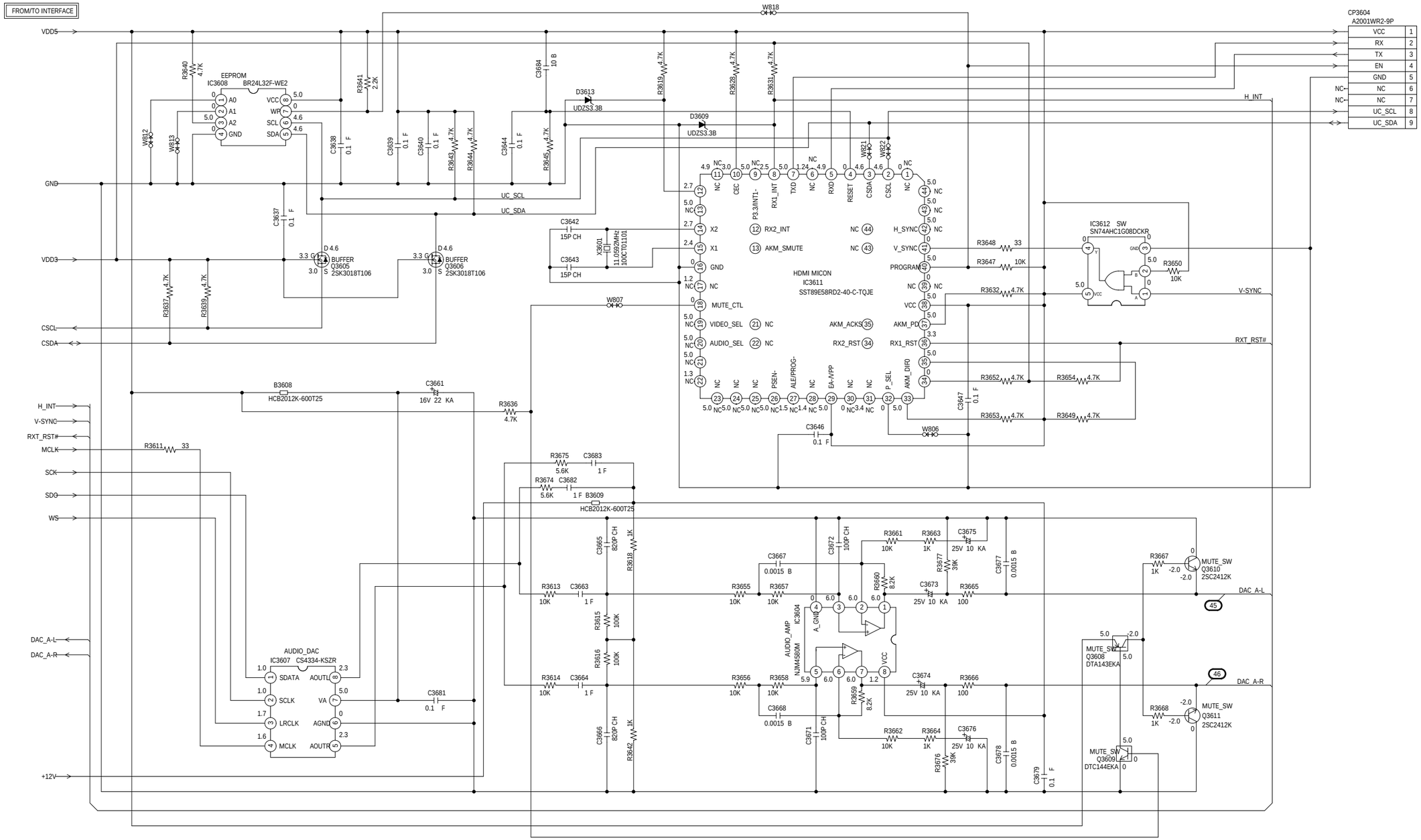
INTERFACE SCHEMATIC DIAGRAM

(HD-MI PCB)


HDMI CONNECTOR CP3601 DC1R019JDA
HDMI_I/F IC3605 SII9993CTG100
EEP_ROM IC3606 BR24L02F-WE2
3.3V_REG IC3601 KIA78D33F
3.3V_REG IC3602 KIA78D33F
BUFFER Q3603 2SK3018T106
BUFFER Q3604 2SK3018T106
BUFFER Q3607 2SK3018T106
PHS79 HS3601 763WSAA024
HCB2012K-600T25
L3601 ACM2012D-900-2P
L3602 ACM2012D-900-2P
L3603 ACM2012D-900-2P
L3604 ACM2012D-900-2P
MTJ-032-05A-32-FE
MTJ-032-05A-31-FE
BOAD TO BOAD CONNECTOR CD3601 (CP4301) C31K3201
TR3805 W5T29X7.5X19
FROM/TO JACK
FROM/TO MICON2
CAUTION: DIGITAL TRANSISTOR
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。
NOTE:THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.
PCBDJ0 CED011

MICON2 SCHEMATIC DIAGRAM

(HD-MI PCB)



CAUTION: DIGITAL TRANSISTOR

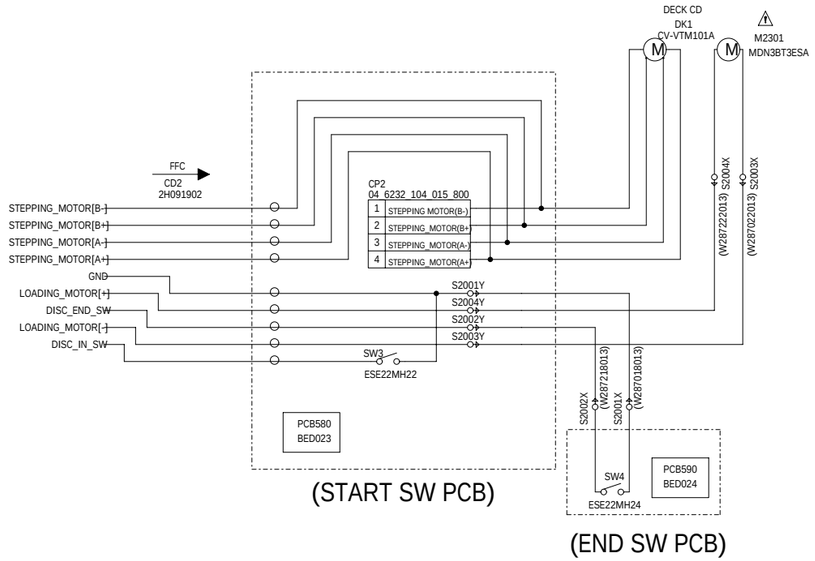
CAUTION: DIGITAL TRANSISTOR

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

NOTE:THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

PCBDJ0
CED011

START SW/END SW SCHEMATIC DIAGRAM



(START SW PCB)

(END SW PCB)

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

INTERCONNECTION DIAGRAM

NOTE: THIS INTERCONNECTION DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION :LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

SP301 1_1 ⚠ 16 OHM 16 OHM

CP301: SP OUT R+ | SP OUT R- | SP OUT L- | SP OUT L+

S_VIDEO J4401

YELLOW REAR VIDEO JACK J4402 · WHITE REAR AUDIO JACK J4403 · RED REAR AUDIO JACK J4404 · GREEN YUV JACK J4407 · BLUE YUV JACK J4406 · RED YUV JACK J4405 · WHITE YUV AUDIO JACK J4408 · RED YUV AUDIO JACK J4409 · COAXIAL J5001

⚠ CP3802: ADAPTER+12V, ADAPTER+12V, GND, GND → CD501: ADAPTER+12V, ADAPTER+12V, GND, GND

CP2601 ↔ FFC CD2601 ↔ CP2601

CP2601	FFC CD2601	CP2601
GND	GND	
VCC	VCC	
C	C	
B	B	
SW1(DVD/CD)	SW1(DVD/CD)	
E	E	
SW2(L/H)	SW2(L/H)	
F	F	
A	A	
D	D	
Vref	Vref	
VR(DVD)	VR(DVD)	
VR COM	VR COM	
VR(CD)	VR(CD)	
GND	GND	
LD(CD)	LD(CD)	
PD	PD	
LD(DVD)	LD(DVD)	
GND	GND	
NC	NC	
T DRV	T DRV	
T RTN	T RTN	
F DRV	F DRV	
F RTN	F RTN	

⚠ SLOT IN DVD DRIVE DK1 CV_VTM101A

OPTICAL PICK-UP

SPINDLE MOTOR

LOADING MOTOR

SLED MOTOR

CP2302: INSW, W, V, U, GND, W-, W+, V-, V+, U-, U+, +5V

CP2301: B-, B+, A-, A+, GND, LDO+, DISC_END_SW, LDO-, DISC_IN_SW

⚠ CD3804 → CP3201

CD3804	CP3201
P.CON12V	P.CON12V
P.CON+9V	P.CON+9V
P.CON+5V	P.CON+5V
AT3.3V	AT3.3V
P.CON+3.8V	P.CON+3.8V
P.CON+3.8V	P.CON+3.8V
GND	GND
GND	GND
GND	GND
HDMI+5V	HDMI+5V
AT+5V	AT+5V

VGA_R, VGA_G, VGA_B, NC, DGND, AGND, AGND, AGND, NC, DGND, NC, DDCD, VGAHS, VGAVS, DDCC

PC JACK CP4302

CP103: RESET, CHIP_SELECT, 4SI_SCL, 4SI_SDA_IN, 4SI_SDA_OUT, GND

CP101: GND, EEPROM_SCL, EEPROM_SDA, IIC_OFF, GND

MICON_DATA CP102: GND, TX, BUSY, NC, VCC, CLK, CNVSS, RESET, GND

CP4303 → CD701

CP4303	CD701
DVD POWER	DVD POWER
DVD_RESET	DVD_RESET
START_SW	START_SW
TX	TX
RX	RX
ZERO	ZERO
SPDIF-134	SPDIF-134
GND	GND
[V]C_VIDEO	[V]C_VIDEO
GND	GND
[U]_VIDEO	[U]_VIDEO
GND	GND
[Y]Y_VIDEO	[Y]Y_VIDEO
GND	GND
DVD_A_OUT_L	DVD_A_OUT_L
DVD_A_OUT_R	DVD_A_OUT_R

DVD PCB PCB130 DMD005

CP7201: VDD +12V, VDD +12V, GND, GND, RXIN0-, RXIN0+, GND, RXIN1-, RXIN1+, GND, RXIN2-, RXIN2+, GND, RXCLK IN-, RXCLK IN+, GND, RXIN3-, RXIN3+, CTL, GND → TO LCD PANEL CD7201_1

AV PCB PCBD20 CME030

CP4401 ↔ FFC CD802 ↔ CP802

CP4401	FFC CD802	CP802
NC		NC
REMOCON IN		REMOCON IN
AFT		AFT
NC AGC		AGC
HP_MUTE		HP_MUTE
AUDIO_MUTE		AUDIO_MUTE
NC EXT_MUTE		EXT_MUTE-H
GND		GND
SCART1_B		SCART1_B
GND		GND
SCART1_G		SCART1_G
GND		GND
SCART1_R		SCART1_R
GND		GND
NC SCART1_Y		SCART1_Y
SCART2_SW		SCART2_SW
NC		NC
POWER_FAIL		POWER_FAIL
POWER_ON-H		POWER_ON-H
LCD-H		LCD-H
LCDON		LCDON
NC LIGHT CTL		LIGHT CTL
NC		NC
S_DET		S_DET
SCART1_SW		SCART1_SW
NC SW_SCART		SW_SCART
NC		NC
NC PSU_5VD/DSR		PSU_5VD/DSR

OPERATION2 PCB PCB280 DED007 → CP2251 → CD2251

CP2251	CD2251
GND	GND
KEY 1	KEY 1

CD2200 ↔ CP2200

CD2200	CP2200
GND	GND
KEY B	KEY B
KEY A	KEY A

OPERATION PCB PCB270 CEE057

CP5001 ↔ FFC CD801 ↔ CP801

CP5001	FFC CD801	CP801
SPIF_134		SPIF_134
GND		GND
HP_OUT_R		HP_OUT_R
GND		GND
HP_OUT_L		HP_OUT_L
GND		GND
DVD_AUDIO_R		DVD_AUDIO_R
GND		GND
DVD_AUDIO_L		DVD_AUDIO_L
GND		GND
SW_AUDIO_R(PC)		SW_AUDIO_R(PC)
GND		GND
SW_AUDIO_L(PC)		SW_AUDIO_L(PC)
NC		NC
NC STEREO_RESET		STEREO_RESET
NC		NC
SCART_AUDIO_SW		SCART_AUDIO_SW
SDA1		SDA1
SCL1		SCL1
GND		GND
NC DVD_Y_OUT		DVD_Y_OUT
GND		GND
NC DVD_C_OUT		DVD_C_OUT
GND		GND
SWITCH_CVBS		SWITCH_CVBS
GND		GND
SWITCH_VIDEO_Y		SWITCH_VIDEO_Y
GND		GND
SWITCH_VIDEO_C		SWITCH_VIDEO_C

COMMAND TRANSMITTER TM101

REMOCON PCB PCBDA0 CEE067

OS2202: B+, GND, Vout

CD2202_1 → CP5002_1

CD2202_1	CP5002_1
REMOCON OUT	REMOCON OUT
GND	GND
AT+5V	AT+5V
POWER LED	POWER LED
P.CON+5V	P.CON+5V

⚠ CP3803

CP3803
LCD ON/OFF
I-PWM
GND(B.L)
GND(B.L)
GND(B.L)
V IN
V IN
V IN

⚠ TU4401: VIDO OUT, NC, +32V, SIF OUT, AUDIO OUT, AFT, SDA, SCL, IF OUT, NC, BT, NC, +B, NC, NC

DC JACK ⚠ J3801

SCALER PCB PCBDS0 CEE082

HDMI PCB PCBDJ0 CED011

⚠ CP3601: D2+, D2-S, D2-, D1+, D1-S, D1-, D0+, D0-S, D0-, CLK+, CLK-S, CLK-, CEC, NC, SCL, SDA, GND, POWER, DET

CP4301 → CD3601

CP4301	CD3601
Pb	Pb
Y	Y
Pr	Pr
GND	GND
NC	NC
NC	NC
+12V	+12V
DAC_A_L	DAC_A_L
GND	GND
DAC_A_R	DAC_A_R
GND	GND
+4V	+4V
+5V	+5V
AUDIO-L	AUDIO-L
GND	GND
AUDIO-R	AUDIO-R
GND	GND
NC	NC
NC V-SYNC	V-SYNC
NC H-SYNC	H-SYNC

CP3604: VCC, RX, TX, EN, GND, NC, NC, UC_SCL, UC_SDA

HEAD PHONE J4301

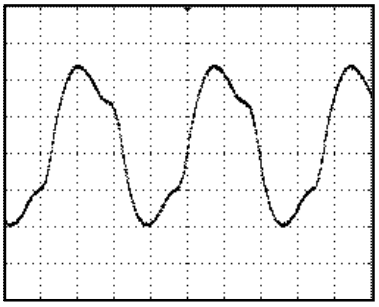
J4306 SIDE VIDEO JACK YELLOW · J4302 SIDE AUDIO JACK WHITE · J4303 SIDE AUDIO JACK RED · J4304 PC AUDIO JACK WHITE · J4305 PC AUDIO JACK RED

J3601 DVI JACK WHITE · J3602 DVI JACK RED

WAVEFORMS

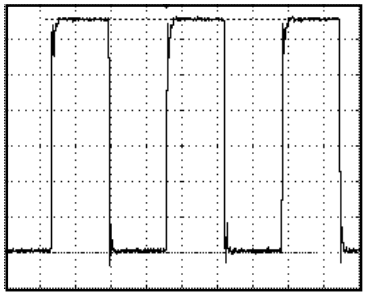
MPEG/MICON/DSP

10ns
1.0V



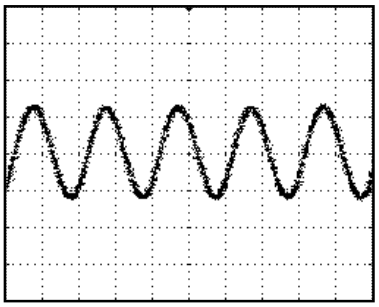
①

200ns
500mV



②

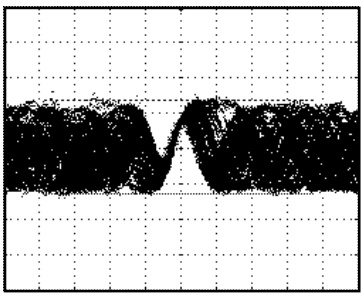
200µs
500mV



③

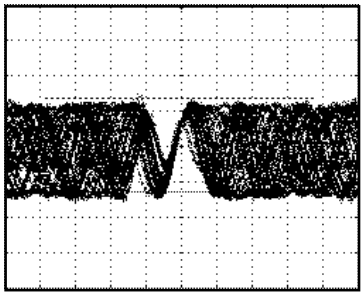
RF AMP

200ns
200mV



④

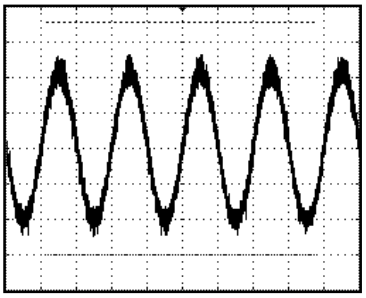
200ns
200mV



⑤

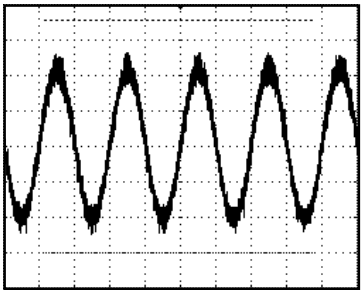
AUDIO/VIDEO

500µs
500mV



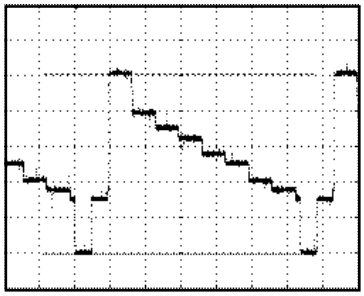
⑥

500µs
500mV



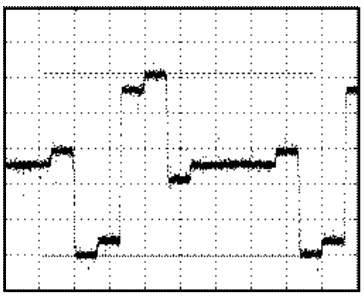
⑦

10µs
200mV



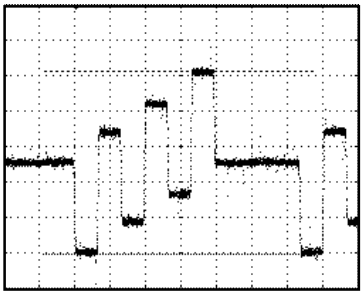
⑧

10µs
100mV



⑨

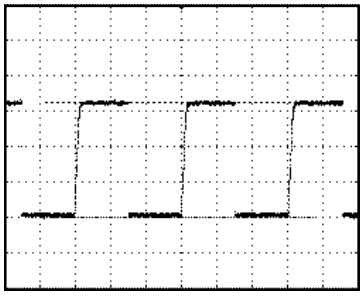
10µs
100mV



⑩

MOTOR DRIVE

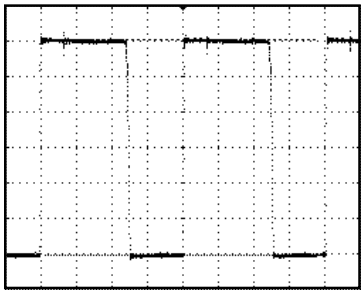
2ms
1.0V



⑪

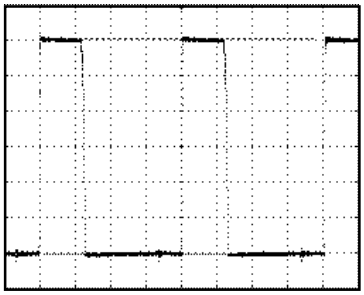
REGULATOR 2

2µs
2.0V



⑫

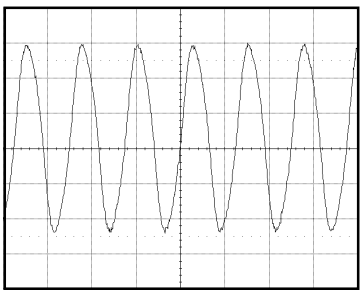
2µs
2.0V



⑬

MICON1

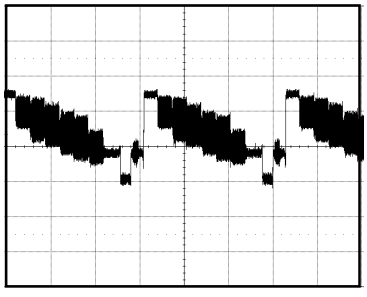
50ns
500mV



⑭

SCALER

20µs
500mV



⑮

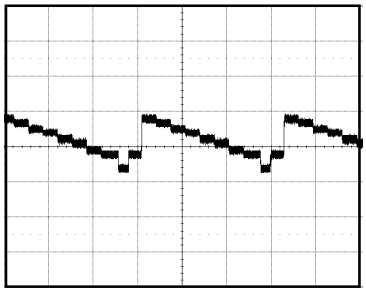
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

JACK

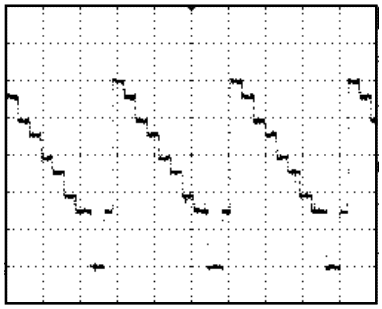
20µs
500mV

16



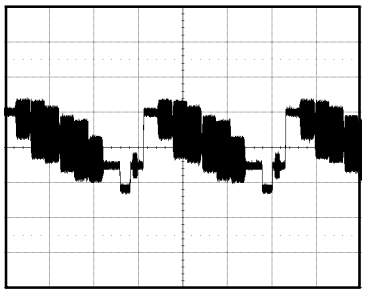
10µs
200mV

21



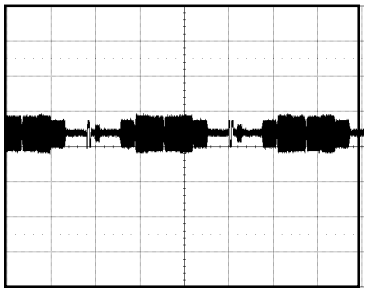
20µs
500mV

26



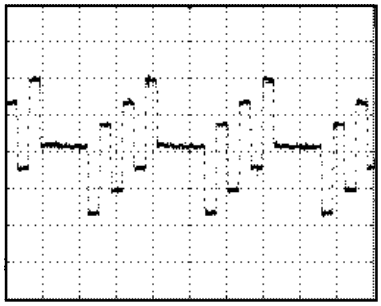
20µs
500mV

17



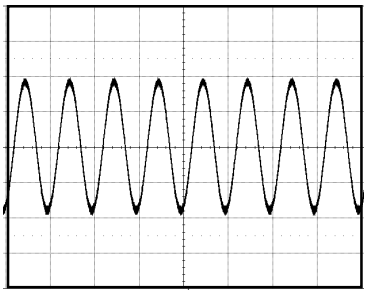
10µs
200mV

22



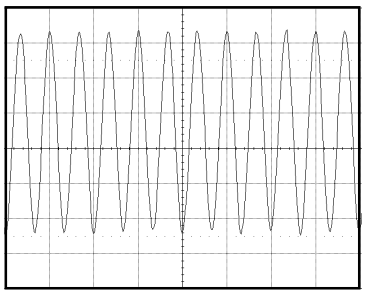
1.0ms
1.0V

27



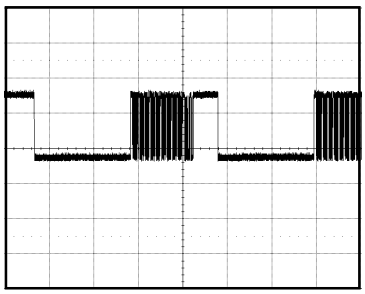
20µs
500mV

18



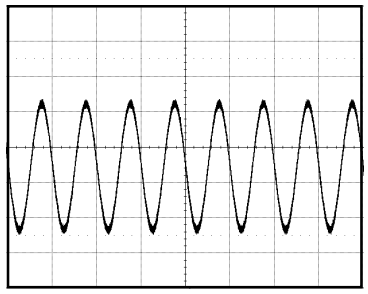
5µs
2.0V

23



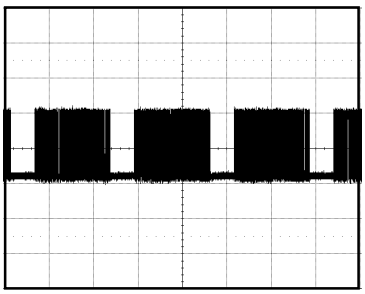
1.0ms
1.0V

28



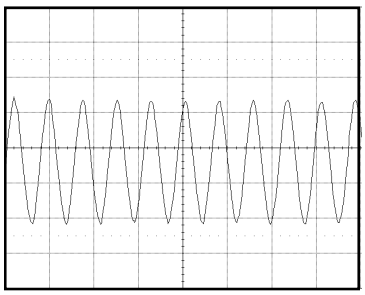
10µs
2.0V

19



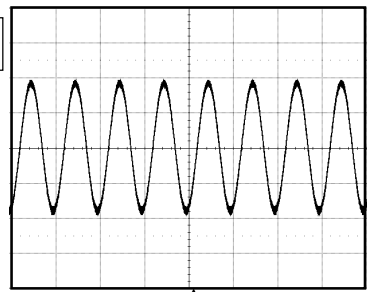
20ns
1.0V

24



1.0ms
1.0V

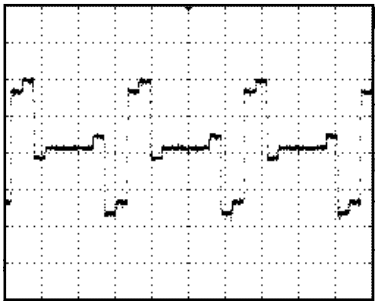
29



ADC

10µs
200mV

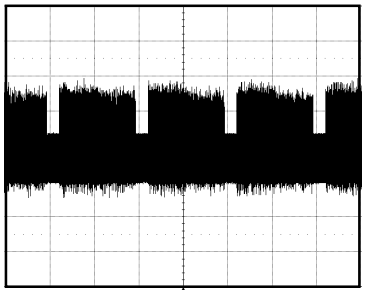
20



LVDS

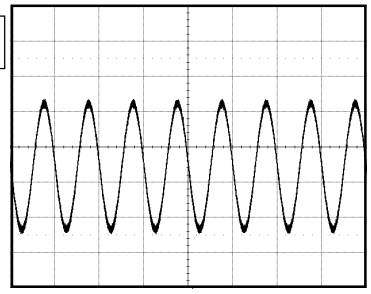
10ms
100mV

25



1.0ms
1.0V

30



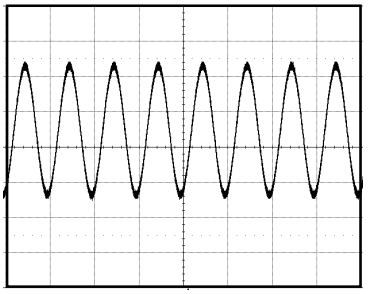
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

AV SWITCH1

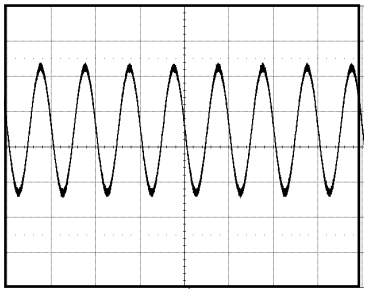
1.0ms
1.0V

(31)



1.0ms
1.0V

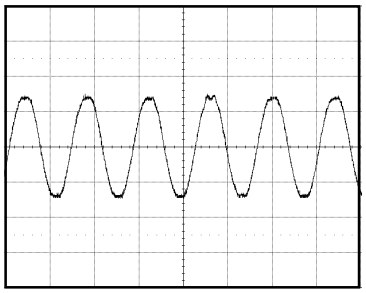
(32)



AV SWITCH2

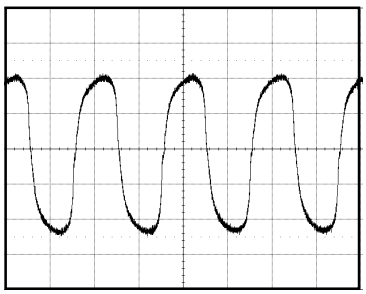
200ns
100mV

(33)



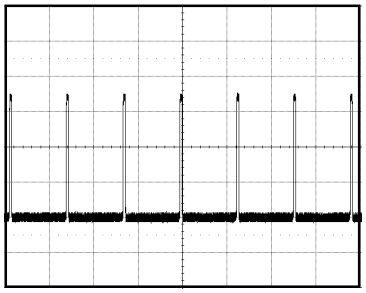
1.0µs
50mV

(34)



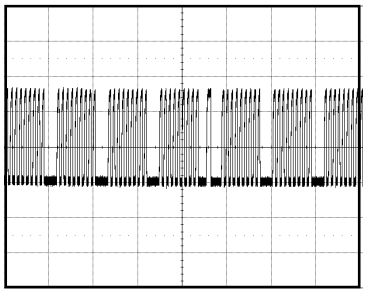
5.0µs
1.0V

(35)



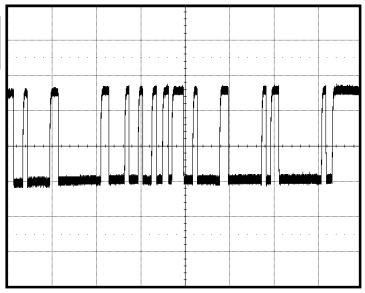
100µs
2.0V

(36)



100µs
2.0V

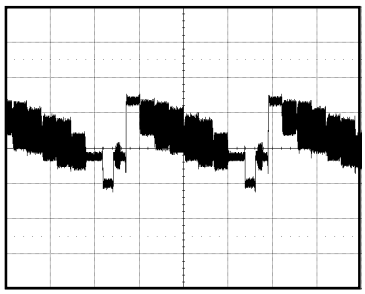
(37)



TUNER/JACK

20µs
500mV

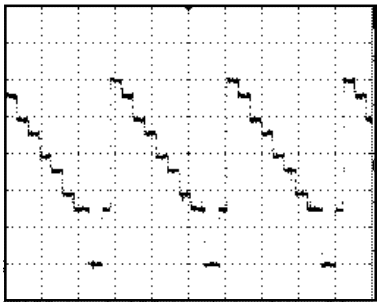
(38)



INTERFACE

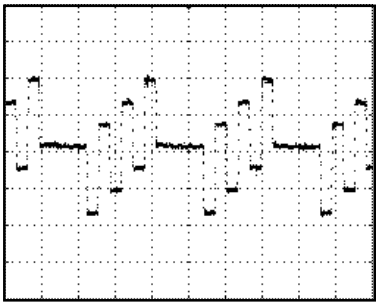
10µs
200mV

(40)



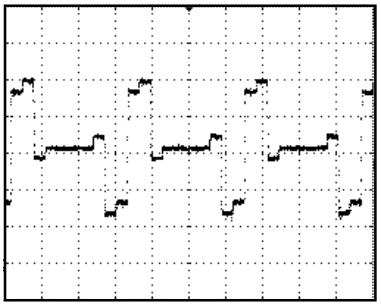
10µs
200mV

(41)



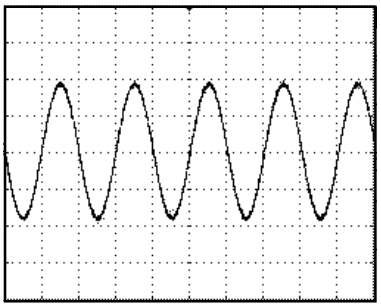
10µs
200mV

(42)



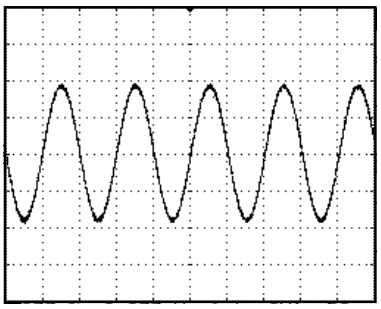
500µs
200mV

(43)



500µs
200mV

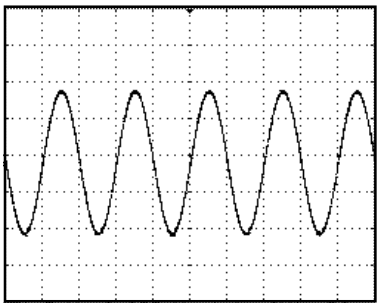
(44)



MICON2

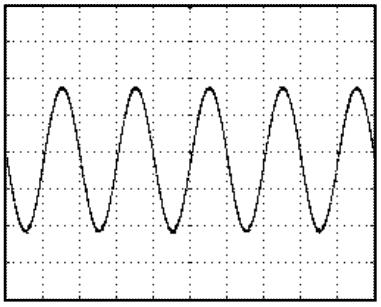
500µs
1.0V

(45)



500µs
1.0V

(46)



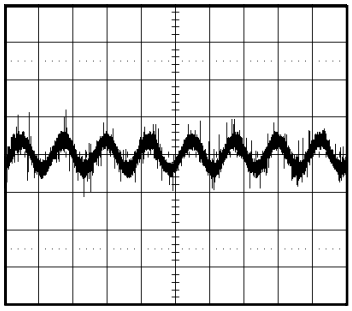
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

STEREO/SOUND AMP

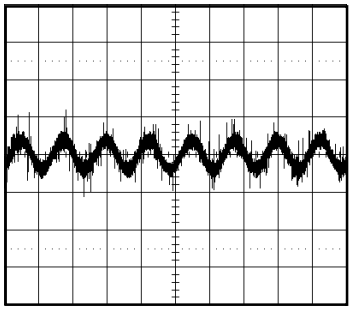
2ms
50mV

⑰



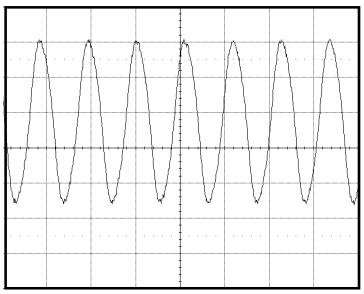
2ms
50mV

⑱



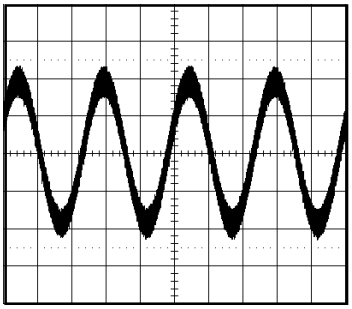
50ns
500mV

⑲



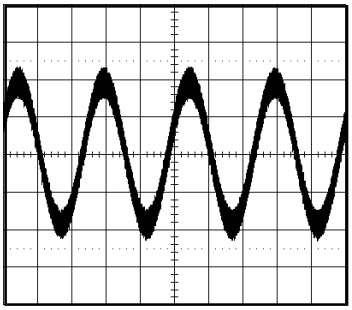
1ms
200mV

⑳



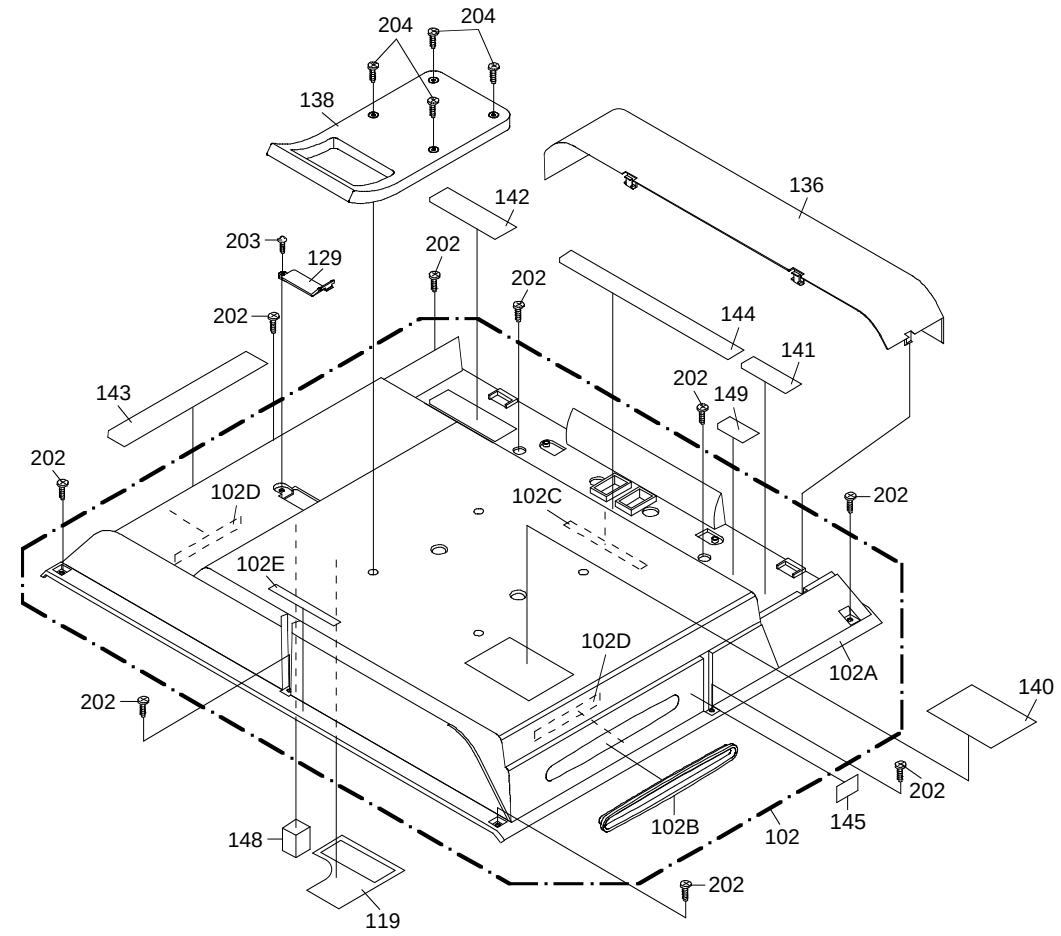
1ms
200mV

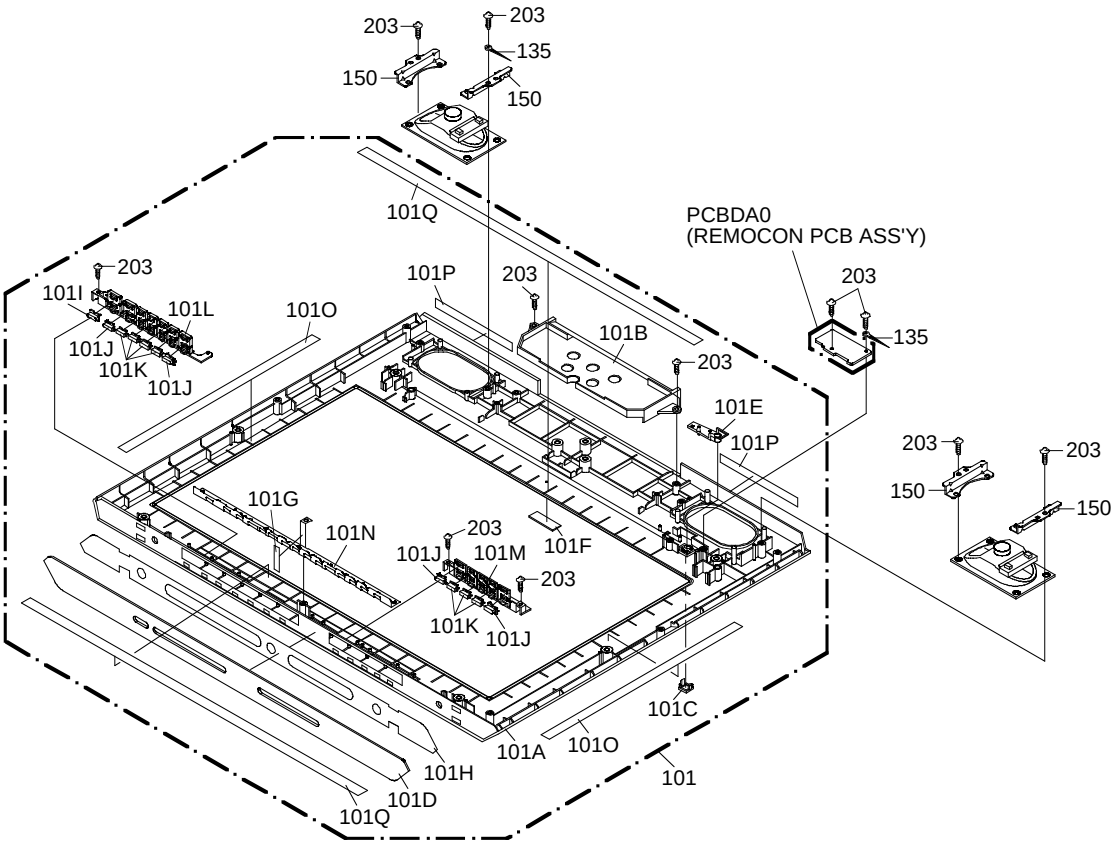
㉑



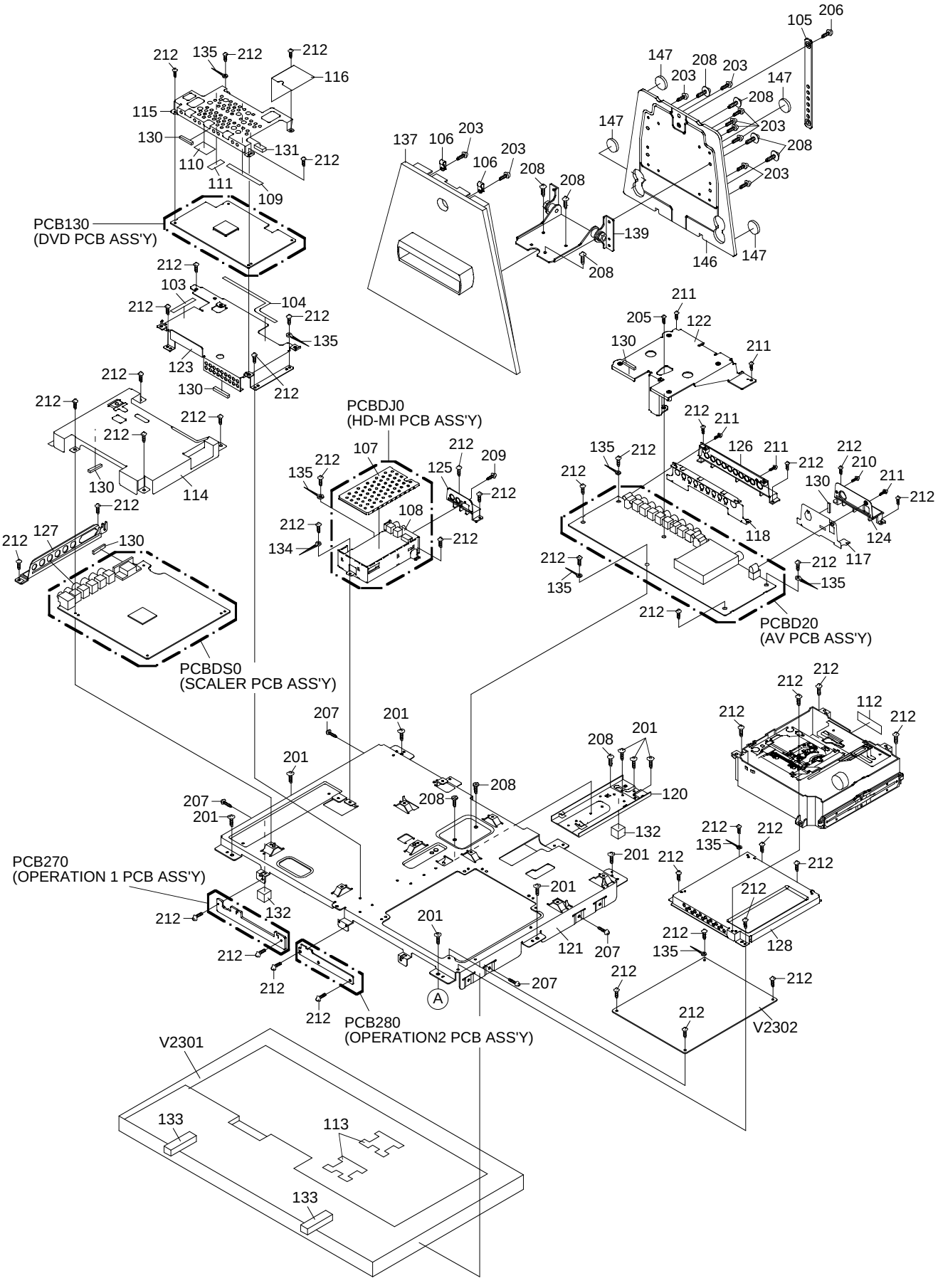
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

MECHANICAL EXPLODED VIEW

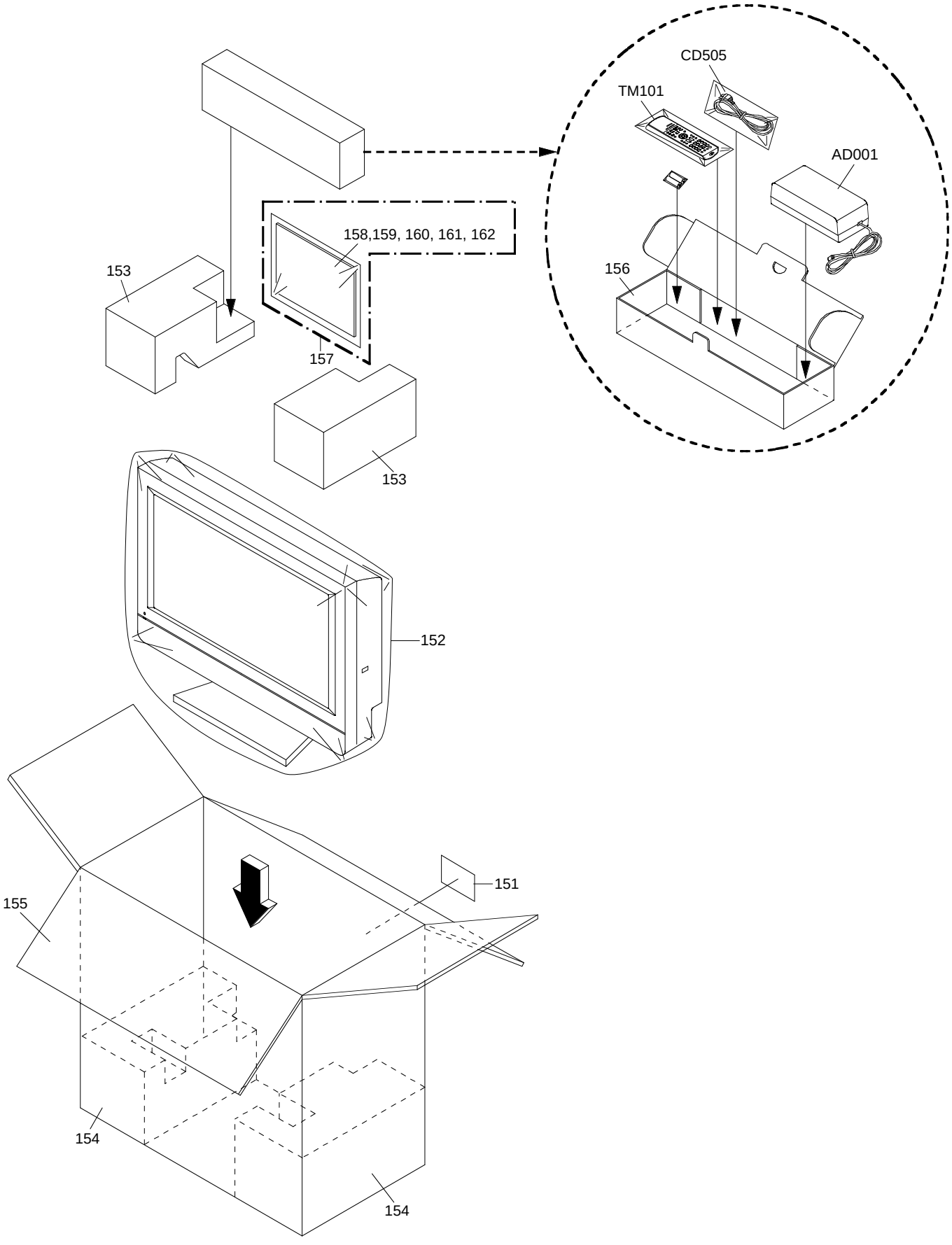




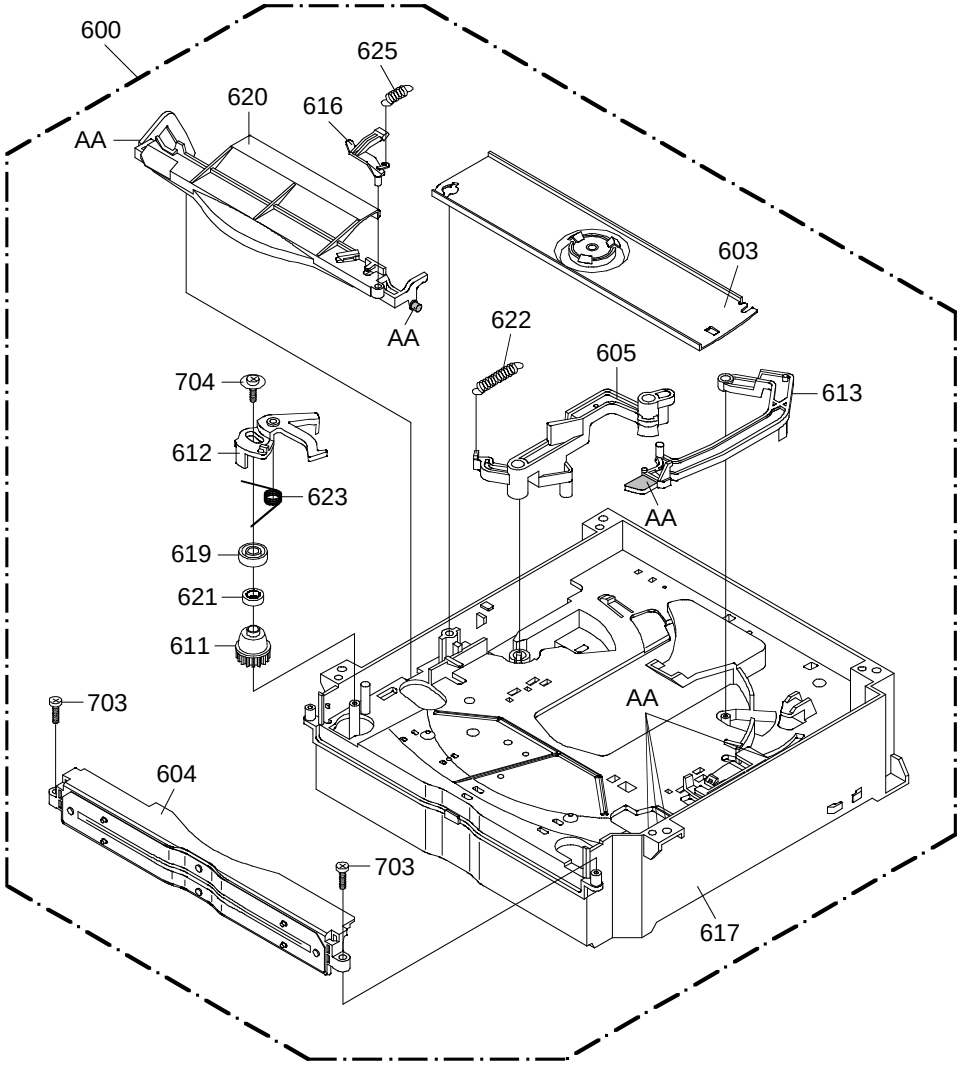
MECHANICAL EXPLODED VIEW



MECHANICAL EXPLODED VIEW
(PACKING DIAGRAM)



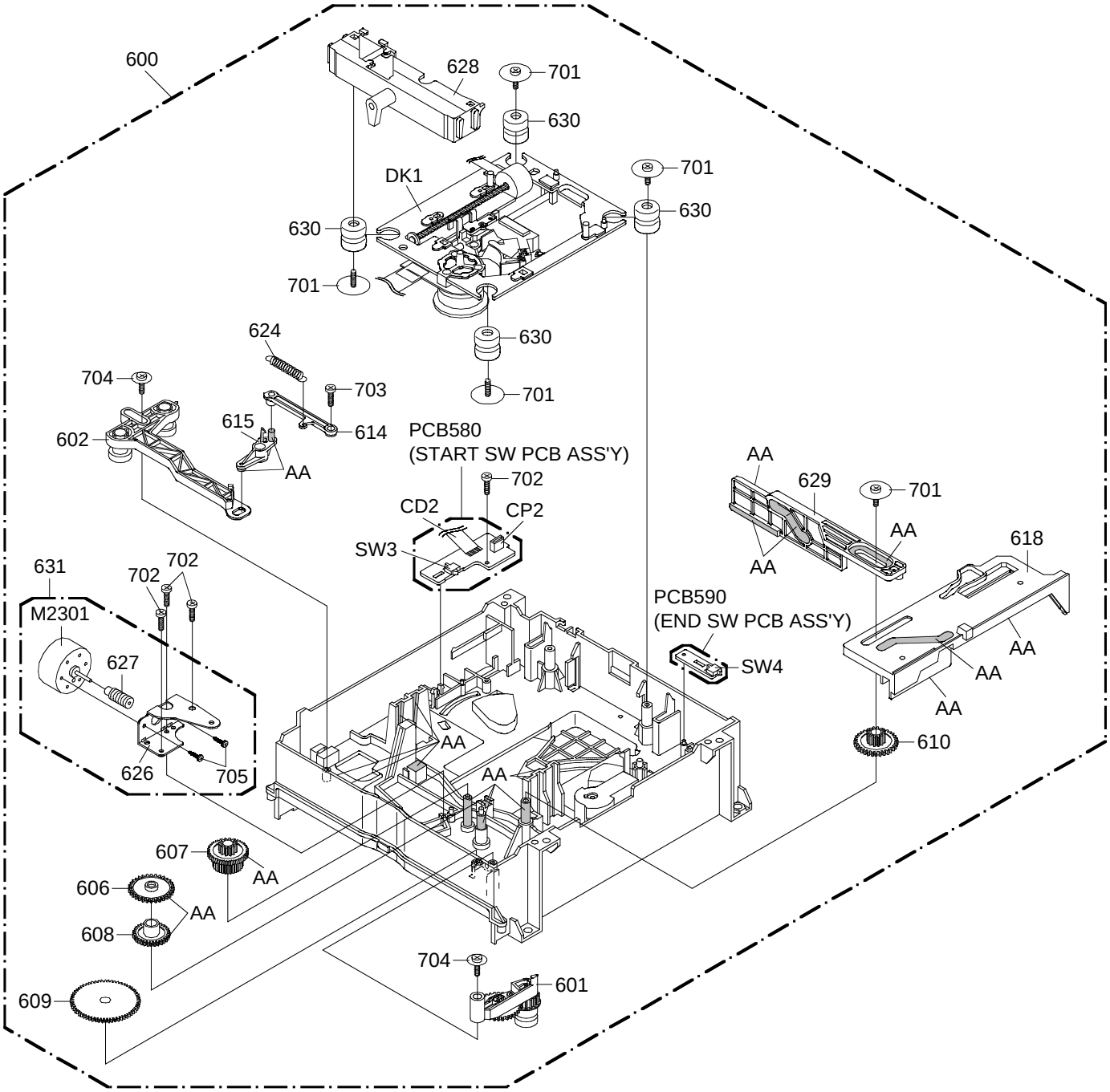
DVD DECK EXPLODED VIEW (TOP VIEW)



CLASS	MARK
GREASE	AA

NOTE: Applying positions AA for the grease are displayed for this section.
Check if the correct grease is applied for each position.

DVD DECK EXPLODED VIEW (BOTTOM VIEW)



CLASS	MARK
GREASE	AA

NOTE: Applying positions AA for the grease are displayed for this section.
Check if the correct grease is applied for each position.

MECHANICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
101	AE007857	7A7010138A	FRONT CABI ASS'Y	
101A	AE007858	701WPJ1373	CABINET,FRONT	
101B	AE007859	702WPA1191	COVER,HINGE	
101C	AE007691	711WPA0242	PLATE,FRONT	
101D	AE007860	711WPC0019	PLATE,TOP ASS'Y	
101E	AE007861	713WPA0377	GLASS,LED	
101F	AE007694	7235490068	BADGE,BRAND	
101G	AE007862	7250000600	SHEET,PC	
101H	AE007863	7290000159	DOUBLE,FACE-TAPE	
101I	AE007696	735WPE0048	BUTTON,CAP-1	
101J	AE007697	735WPE0049	BUTTON,CAP-2	
101K	AE007698	735WPE0050	BUTTON,CAP-3	
101L	AE007699	738WPA0172	BUTTON,FRAME-TV	
101M	AE007700	738WPA0173	BUTTON,FRAME-DVD	
101N	AE007864	752WSA0528	SHIELD,BUTTON	
101O	AE005451	800WQ0A049	FELT SHEET	
101P	AE006315	800WQ0A087	FELT SHEET	
101Q	AE005456	800WQ00087	FELT SHEET	9x380xT=0.3
102	AE007865	7A7020053A	BACK CABI ASS'Y	
102A	AE007866	702WPB0082	CABINET,BACK	
102B	AE007706	704WPE0002	SLOT,DVD	
102C	AE003110	800WQ0A052	FELT SHEET	
102D	AE007707	800WQ0A110	FELT SHEET	
102E	AE007867	800WQ00093	FELT SHEET	
103	AE007708	800WQ00095	FELT SHEET	
104	AE007709	800WQ00096	FELT SHEET	
105	AE007710	89900FB118	BAND	
106	AE007711	899000NK4N	CABLE,CLAMPS	
107	AE004831	752WSA0413	HDMI SHIELD,COVER	
108	AE007712	752WSA0511	SHIELD,BOTTOM HDMI	
109	AE005329	7250000590	SHEET,PC 1	
110	AE005330	7250000591	SHEET,PC 2	
111	AE005331	7250000592	SHEET,PC 3	
112	AE005122	726000A073	SHEET,CAUTION	
113	AE007713	735WEA0004	SHEET,CU	
114	AE007714	751WSA0017	SHIELD,LCD-PCB	
115	AE004529	752WSA0424	SHIELD,DVD	
116	AE007868	752WSA0530	SHIELD,FFC	
117	AE007869	752WSA0524	SHIELD,JACK-1	
118	AE007870	752WSA0534	SHIELD,JACK-2	
119	AE007871	753WEA0025	SHEET,CU	
120	AE007872	761WSA0275	ANGLE,HINGE	
121	AE007873	761WSA0277	COVER,LCD	
122	AE007874	761WSA0274	ANGLE,HANDLE-DVD	
123	AE007875	761WSA0280	ANGLE,PCB	
124	AE007876	771WPB0058	PLATE,JACK-1	
125	AE007877	771WPB0061	PLATE,JACK-3	
126	AE007723	771WPB0057	PLATE,JACK-2	
127	AE007724	771WPJ0004	PLATE,JACK SIDE	
128	AE007878	752WSA0526	ANGLE,DVD	
129	AE007879	702WPB0085	COVER,CONNECTOR	
130	AE005521	8965TS0415	CUSHION 65TS4-2	15x50x16
131	AE005385	8965TS1015	CUSHION 65TS10-5	10x5x15
132	AE007880	8965TS202A	CUSHION 65TS20-20	20x15x12
133	AE007881	8965TS2045	CUSHION W6/H2/L45	
134	AD301370	899EFBA002	WIRING-CLIP	
135	BZ710039	8995034000	CORD CLIP UL CO.	
136	AE007882	702WPB0083	COVER,BACK	
137	AE007883	704WPB0013	STAND	
138	AE007884	705WPB0026	HANDLE	
139	AE007730	706JSA0013	HINGE ASS'Y	

MECHANICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
140	AE007885	7225490216	SHEET,RATING	
141	AE007886	7230008016	SHEET,JACK-1	
142	AE007733	7230007977	SHEET,JACK-3	
143	AE007734	7230007978	SHEET,JACK SIDE	
144	AE007887	7230008015	SHEET,JACK-2	
145	AE000156	7235630001	SHEET,DVD	
146	AE007736	761WSB0008	ANGLE,STAND	
147	AE007737	800WFA0078	CUSHION,LEG	
148	AE007888	8965TS3020	CUSHION 65TS10-30	20x20x12
149	AE007889	7230008021	SHEET,JACK-4	
150	AE004527	761WSA0167	ANGLE,SPEAKER	
151	AE007890	7230008027	SHEET,BAR CODE	
152	AE002901	791WHDA001	LAMIFILM BAG	
153	AE007891	792WHA0619	PACKAGE,TOP	
154	AE007892	792WHA0620	PACKAGE,BOTTOM	
155	AE007893	793WCD1672	GIFT BOX	
156	AE007894	797WCA0040	ADAPTER BOX	
157	AE007849	A5U901D975	INSTRUCTION BOOK KIT	
158	AE007850	JA4ND400	POLYBAG INSTRUCTION(RED CAUTION)	
159	AE007451	J3N51617A	REGISTRATION CARD	
160	AE007852	J5N00629A	INFORMATION SHEET(CND)	
161	AE007627	J5S10229A	INFORMATION SHEET(USA)	
162	AE007851	J5U90121A	INSTRUCTION BOOK(E/F)	
201	AE007353	8117540A2U	SCREW,TAPPING(B0) TRUSS	4x12
202	AE005832	8110630A2U	SCREW,TAP TITE(P) BRAZIER	3x12
203	AE003528	8110630A0U	SCREW,TAP TITE(P) BRAZIER	3x10
204	AE007895	8102540A2U	SCREW,TRUSS	M4x12
205	AE003526	810923080U	SCREW,TAP TITE(B) BIND	3x8
206	AE007747	814623080U	SCREW,TAP TITE(B) BIND	3x5.7+4x2.3
207	AE007896	810A13060U	SCREW,WASHER(A)	M3x6
208	AE005140	810A14080U	SCREW,WASHER(A)	M4x8
209	AE005214	810213080U	SCREW,PAN	M3x8
210	AE005987	810723060U	SCREW,TAP TITE(S) BIND	3x6
211	AE007749	811023080U	SCREW,TAP TITE(P) BIND	3x8
212	AE005675	810923060U	SCREW,TAP TITE(B) BIND	3x6

DVD DECK REPLACEMENT PARTS LIST

	Location No.	TSB P/N	Reference No.		Description
⚠	600	AE006820	A5N005C650S	DVD MECHA ASS'Y	A5N005C650S
	601	AE006821	92AAA0015A	ARM ROLLER ASS'Y 2	
	602	AE004553	92AAA0006A	LINK,R ASS'Y	
	603	AE004554	92AAA0007A	CLAMPER ASS'Y	
	604	AE004555	92AAA0009A	MOUTH ASS'Y	
	605	AE004556	92P100041A	ARM, DISC GUIDE	
	606	AE004557	92P100044A	GEAR, MID RACK	
	607	AE004558	92P100045A	GEAR, TERMINAL	
	608	AE004559	92P100046A	GEAR, MID ROLLER 1	
	609	AE004560	92P100047A	GEAR, MID ROLLER 2	
	610	AE004561	92P100049A	GEAR, RACK	
	611	AE004562	92P100050A	GEAR, ROLLER	
	612	AE004563	92P100052A	LEVER, DISC L	
	613	AE004564	92P100053A	LEVER, DISC R	
	614	AE004565	92P100054A	LINK, L	
	615	AE004566	92P100055A	LINK, MID	
	616	AE004567	92P100057A	LOCKER, STOPPER	
	617	AE004568	92P100058A	CHASSIS, MAIN CUT	
	618	AE004569	92P100060A	RACK, LOADING	
	619	AE004570	92P100062A	ROLLER, UPPER	
	620	AE004571	92P100064A	STOPPER, DISC	
	621	AE004572	92P200011A	RUBBER,ROLLER	
	622	AE004573	92P300010A	SPRING,GUIDE ARM	
	623	AE004574	92P300011A	SPRING,LEVER DISC L	
	624	AE004575	92P300012A	SPRING,LINK	
	625	AE004576	92P300013A	SPRING,STOPPER	
	626	AE004577	92P000006A	BRACKET, LOADING MOTOR	
	627	AE004578	92P100066A	WORM, LOADING	
	628	AE004579	92P100051A	HOLDER, TRAVERSE UNIT	
	629	AE004580	92P100061A	ROD, TRAVERSE UNIT	
	630	AE004581	92P200010A	INSULATOR	
	631	AE007756	A5N005C600	LOADING MOTOR ASS'Y	
	701	AE006822	8110E2680U	SCREW,TAP TITE(P) WH10	M2.6x8
	702	AE006823	810922060U	SCREW,TAP TITE(B) BIND	2x6
	703	AE006824	810922040U	SCREW,TAP TITE(B) BIND	2x4
	704	AE006825	8109I2060U	SCREW,TAP TITE(B) WH7	2x6
	705	AE006826	810211718U	SCREW,PAN	M1.7x1.8
	CD2	AE006406	122H092401	CORD JUMPER	2H092401
	CP2	AE006411	069EV4T060	CONNECTOR PCB SIDE	04_6232_104_015_800+
	DK1	AE006407	169Z00035A	DECK CD	CV-VTM101D
⚠	M2301	AE004589	1596998002	MOTOR	MDN3BT3ESA
	PCB580	AE006827	A5N005C580	PCB ASS'Y	DED023A
	PCB590	AE006828	A5N005C590	PCB ASS'Y	DED024A
	SW3	AE001158	0500101036	PUSH SWITCH	ESE22MH22
	SW4	AE003565	0500101037	PUSH SWITCH	ESE22MH24

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.		Description
		RESISTORS		
R102	AE001784	R803R9103J	RC	10K OHM 1/16W
R103	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R104	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R105	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R106	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R107	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R109	AE001784	R803R9103J	RC	10K OHM 1/16W
R112	AE001783	R803R9102J	RC	1K OHM 1/16W
R114	AE001781	R803R9101J	RC	100 OHM 1/16W
R115	AE001781	R803R9101J	RC	100 OHM 1/16W
R116	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R117	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R118	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R119	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R120	AE001783	R803R9102J	RC	1K OHM 1/16W
R121	AE001783	R803R9102J	RC	1K OHM 1/16W
R122	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R123	AE001783	R803R9102J	RC	1K OHM 1/16W
R126	AE001783	R803R9102J	RC	1K OHM 1/16W
R129	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R132	AE001781	R803R9101J	RC	100 OHM 1/16W
R133	AE001781	R803R9101J	RC	100 OHM 1/16W
R134	AE001783	R803R9102J	RC	1K OHM 1/16W
R135	AE001784	R803R9103J	RC	10K OHM 1/16W
R136	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R137	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R139	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R141	AE001781	R803R9101J	RC	100 OHM 1/16W
R142	AE001781	R803R9101J	RC	100 OHM 1/16W
R147	AE001781	R803R9101J	RC	100 OHM 1/16W
R148	AE001781	R803R9101J	RC	100 OHM 1/16W
R149	AE001784	R803R9103J	RC	10K OHM 1/16W
R151	AE001784	R803R9103J	RC	10K OHM 1/16W
R152	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R153	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R154	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R155	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R156	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R157	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R158	AE001784	R803R9103J	RC	10K OHM 1/16W
R159	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R160	AE001784	R803R9103J	RC	10K OHM 1/16W
R161	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R302	AE001805	R803R9822J	RC	8.2K OHM 1/16W
R303	AE002148	R803R9183J	RC	18K OHM 1/16W
R304	AE001784	R803R9103J	RC	10K OHM 1/16W
R305	AE001784	R803R9103J	RC	10K OHM 1/16W
⚠R306	BZ210204	R3X1814R7J	R,METAL OXIDE	4.7 OHM 1W
R307	AE003983	R002T42R2J	RC	2.2 OHM 1/4W
R308	AE003983	R002T42R2J	RC	2.2 OHM 1/4W
R309	AE001886	R803R9100J	RC	10 OHM 1/16W
R310	AE003983	R002T42R2J	RC	2.2 OHM 1/4W
R312	AE001805	R803R9822J	RC	8.2K OHM 1/16W
R313	AE002148	R803R9183J	RC	18K OHM 1/16W
R314	AE001283	R803R9470J	RC	47 OHM 1/16W
R315	AE001784	R803R9103J	RC	10K OHM 1/16W
R316	AE001784	R803R9103J	RC	10K OHM 1/16W
⚠R317	BZ210204	R3X1814R7J	R,METAL OXIDE	4.7 OHM 1W
R318	AE003983	R002T42R2J	RC	2.2 OHM 1/4W
R319	AE003983	R002T42R2J	RC	2.2 OHM 1/4W
R320	AE001886	R803R9100J	RC	10 OHM 1/16W
R321	AE003983	R002T42R2J	RC	2.2 OHM 1/4W
R328	AE001801	R803R9682J	RC	6.8K OHM 1/16W
R805	AE001784	R803R9103J	RC	10K OHM 1/16W
R807	AE001784	R803R9103J	RC	10K OHM 1/16W
R808	AE001784	R803R9103J	RC	10K OHM 1/16W
R809	AE001784	R803R9103J	RC	10K OHM 1/16W
R810	AE001784	R803R9103J	RC	10K OHM 1/16W
R811	AE001784	R803R9103J	RC	10K OHM 1/16W
R812	AE001784	R803R9103J	RC	10K OHM 1/16W
R813	AE001784	R803R9103J	RC	10K OHM 1/16W

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.		Description
		RESISTORS		
R814	AE001784	R803R9103J	RC	10K OHM 1/16W
R815	AE001784	R803R9103J	RC	10K OHM 1/16W
R816	AE001784	R803R9103J	RC	10K OHM 1/16W
R817	AE001784	R803R9103J	RC	10K OHM 1/16W
R818	AE001784	R803R9103J	RC	10K OHM 1/16W
R819	AE001784	R803R9103J	RC	10K OHM 1/16W
R820	AE001784	R803R9103J	RC	10K OHM 1/16W
R821	AE001784	R803R9103J	RC	10K OHM 1/16W
R822	AE001784	R803R9103J	RC	10K OHM 1/16W
R823	AE001784	R803R9103J	RC	10K OHM 1/16W
R825	AE001887	R803R9105J	RC	1M OHM 1/16W
R826	AE001784	R803R9103J	RC	10K OHM 1/16W
R828	AE001784	R803R9103J	RC	10K OHM 1/16W
R830	79091139	R803R9151J	RC	150 OHM 1/16W
R831	AE001784	R803R9103J	RC	10K OHM 1/16W
R833	AE001283	R803R9470J	RC	47 OHM 1/16W
R834	AE001784	R803R9103J	RC	10K OHM 1/16W
R835	AE001784	R803R9103J	RC	10K OHM 1/16W
R836	AE001783	R803R9102J	RC	1K OHM 1/16W
R840	AE001890	R803R9221J	RC	220 OHM 1/16W
R2102	AE001783	R803R9102J	RC	1K OHM 1/16W
R2103	AE001805	R803R9822J	RC	8.2K OHM 1/16W
R2104	AE001781	R803R9101J	RC	100 OHM 1/16W
R2105	AE001781	R803R9101J	RC	100 OHM 1/16W
R2106	AE001794	R803R9330J	RC	33 OHM 1/16W
R2107	AE001781	R803R9101J	RC	100 OHM 1/16W
R2108	AE001783	R803R9102J	RC	1K OHM 1/16W
R2109	AE001890	R803R9221J	RC	220 OHM 1/16W
R2110	AE001781	R803R9101J	RC	100 OHM 1/16W
R2111	AE001796	R803R9471J	RC	470 OHM 1/16W
R2112	AE001783	R803R9102J	RC	1K OHM 1/16W
R2202	AE000849	R803R9152J	RC	1.5K OHM 1/16W
R2203	AE002151	R803R9391J	RC	390 OHM 1/16W
R2204	AE001783	R803R9102J	RC	1K OHM 1/16W
R2206	AE002154	R803R9821J	RC	820 OHM 1/16W
R2212	AE001801	R803R9682J	RC	6.8K OHM 1/16W
R2213	AE002532	R803R9272J	RC	2.7K OHM 1/16W
R2251	AE002154	R803R9821J	RC	820 OHM 1/16W
R2252	AE001783	R803R9102J	RC	1K OHM 1/16W
R2253	AE000849	R803R9152J	RC	1.5K OHM 1/16W
R2254	AE002532	R803R9272J	RC	2.7K OHM 1/16W
R2255	AE001801	R803R9682J	RC	6.8K OHM 1/16W
R2301	AE001784	R803R9103J	RC	10K OHM 1/16W
R2302	AE001781	R803R9101J	RC	100 OHM 1/16W
R2303	AE001891	R803R9223J	RC	22K OHM 1/16W
R2304	AE005096	R803R9512J	RC	5.1K OHM 1/16W
R2306	AE001886	R803R9100J	RC	10 OHM 1/16W
R2307	AE001886	R803R9100J	RC	10 OHM 1/16W
R2309	AE001784	R803R9103J	RC	10K OHM 1/16W
R2310	79091264	R803R94R7J	RC	4.7 OHM 1/16W
R2312	AE001784	R803R9103J	RC	10K OHM 1/16W
R2314	AE001793	R803R92R2J	RC	2.2 OHM 1/16W
R2315	AE002145	R803R9153J	RC	15K OHM 1/16W
R2316	AE002907	R803R9562F	RC	5.6K OHM 1/16W
R2319	AE001784	R803R9103J	RC	10K OHM 1/16W
R2320	AE001785	R803R9104J	RC	100K OHM 1/16W
R2321	AE001886	R803R9100J	RC	10 OHM 1/16W
R2322	AE001886	R803R9100J	RC	10 OHM 1/16W
R2323	AE001886	R803R9100J	RC	10 OHM 1/16W
R2324	AE001886	R803R9100J	RC	10 OHM 1/16W
R2325	79091264	R803R94R7J	RC	4.7 OHM 1/16W
R2326	79091264	R803R94R7J	RC	4.7 OHM 1/16W
R2327	79091264	R803R94R7J	RC	4.7 OHM 1/16W
R2330	AE001784	R803R9103J	RC	10K OHM 1/16W
R2331	AE002145	R803R9153J	RC	15K OHM 1/16W
R2334	AE001781	R803R9101J	RC	100 OHM 1/16W
R2335	AE002907	R803R9562F	RC	5.6K OHM 1/16W
R2337	AE001782	R803R9102F	RC	1K OHM 1/16W
R2338	AE001782	R803R9102F	RC	1K OHM 1/16W
R2346	AE002907	R803R9562F	RC	5.6K OHM 1/16W
R2347	AE002907	R803R9562F	RC	5.6K OHM 1/16W

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.		Description
		RESISTORS		
R2350	AE002907	R803R9562F	RC	5.6K OHM 1/16W
R2351	AE002907	R803R9562F	RC	5.6K OHM 1/16W
R2601	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R2602	AE000850	R803R9185J	RC	1.8M OHM 1/16W
R2603	AE000847	R803R9133F	RC	13K OHM 1/16W
R2604	AE000852	R803R9273F	RC	27K OHM 1/16W
R2605	AE000845	R803R9103F	RC	10K OHM 1/16W
R2607	AE001787	R803R9122J	RC	1.2K OHM 1/16W
R2608	AE001787	R803R9122J	RC	1.2K OHM 1/16W
R2609	AE001787	R803R9122J	RC	1.2K OHM 1/16W
R2610	AE000853	R803R9512F	RC	5.1K OHM 1/16W
R2611	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R2612	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R2613	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R2614	AE000846	R803R9123F	RC	12K OHM 1/16W
R2615	AE001886	R803R9100J	RC	10 OHM 1/16W
R2616	AE001783	R803R9102J	RC	1K OHM 1/16W
R2617	AE001783	R803R9102J	RC	1K OHM 1/16W
R2618	79091397	R803R9180J	RC	18 OHM 1/16W
R2619	AE001781	R803R9101J	RC	100 OHM 1/16W
R2620	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R2621	AE001781	R803R9101J	RC	100 OHM 1/16W
R2622	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R2623	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R2624	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R2626	AE002151	R803R9391J	RC	390 OHM 1/16W
R2633	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R2634	AE001887	R803R9105J	RC	1M OHM 1/16W
R2635	AE001887	R803R9105J	RC	1M OHM 1/16W
R2643	AE001783	R803R9102J	RC	1K OHM 1/16W
R2644	AE001790	R803R9222J	RC	2.2K OHM 1/16W
R2645	AE001783	R803R9102J	RC	1K OHM 1/16W
R2646	AE001790	R803R9222J	RC	2.2K OHM 1/16W
R2647	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R2648	AE000848	R803R9133J	RC	13K OHM 1/16W
R2654	79091397	R803R9180J	RC	18 OHM 1/16W
R3001	AE001784	R803R9103J	RC	10K OHM 1/16W
R3002	AE001799	R803R9562J	RC	5.6K OHM 1/16W
R3003	AE001783	R803R9102J	RC	1K OHM 1/16W
R3004	AE000845	R803R9103F	RC	10K OHM 1/16W
R3005	AE000845	R803R9103F	RC	10K OHM 1/16W
R3006	AD302291	R803R9683J	RC	68K OHM 1/16W
R3007	AE001898	R803R9563J	RC	56K OHM 1/16W
R3008	AE002908	R803R9183F	RC	18K OHM 1/16W
R3009	AE000845	R803R9103F	RC	10K OHM 1/16W
R3010	AE000845	R803R9103F	RC	10K OHM 1/16W
R3011	AD302291	R803R9683J	RC	68K OHM 1/16W
R3012	AE001898	R803R9563J	RC	56K OHM 1/16W
R3013	AE002152	R803R9561J	RC	560 OHM 1/16W
R3014	AE001799	R803R9562J	RC	5.6K OHM 1/16W
R3015	AE001886	R803R9100J	RC	10 OHM 1/16W
R3016	AE001886	R803R9100J	RC	10 OHM 1/16W
R3018	AE006856	R803R9752F	RC	7.5K OHM 1/16W
R3019	AE005088	R803R9182F	RC	1.8K OHM 1/16W
R3020	AE002152	R803R9561J	RC	560 OHM 1/16W
R3021	AE001799	R803R9562J	RC	5.6K OHM 1/16W
R3022	AE001886	R803R9100J	RC	10 OHM 1/16W
R3023	AE001886	R803R9100J	RC	10 OHM 1/16W
R3024	AE005090	R803R9221F	RC	220 OHM 1/16W
R3025	AE005092	R803R9272F	RC	2.7K OHM 1/16W
R3026	AE005088	R803R9182F	RC	1.8K OHM 1/16W
R3027	AE001897	R803R9511F	RC	510 OHM 1/16W
R3029	AE001782	R803R9102F	RC	1K OHM 1/16W
R3209	AE001784	R803R9103J	RC	10K OHM 1/16W
R3211	AE002907	R803R9562F	RC	5.6K OHM 1/16W
R3212	AE001795	R803R9332F	RC	3.3K OHM 1/16W
R3216	AE002152	R803R9561J	RC	560 OHM 1/16W
R3217	AE002152	R803R9561J	RC	560 OHM 1/16W
R3220	AE001784	R803R9103J	RC	10K OHM 1/16W
R3221	AE004090	R803R9471F	RC	470 OHM 1/16W
R3222	AE001782	R803R9102F	RC	1K OHM 1/16W

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.		Description
		RESISTORS		
R3223	AE001891	R803R9223J	RC	22K OHM 1/16W
R3224	AE001783	R803R9102J	RC	1K OHM 1/16W
R3225	AE001891	R803R9223J	RC	22K OHM 1/16W
R3226	AE001783	R803R9102J	RC	1K OHM 1/16W
R3227	AE001783	R803R9102J	RC	1K OHM 1/16W
R3228	AE001805	R803R9822J	RC	8.2K OHM 1/16W
R3229	AE001783	R803R9102J	RC	1K OHM 1/16W
R3601	AE001886	R803R9100J	RC	10 OHM 1/16W
R3605	AE001797	R803R9473J	RC	47K OHM 1/16W
R3606	AE001283	R803R9470J	RC	47 OHM 1/16W
R3607	AE001283	R803R9470J	RC	47 OHM 1/16W
R3608	AE001896	R803R9474J	RC	470K OHM 1/16W
R3609	AE001896	R803R9474J	RC	470K OHM 1/16W
R3610	AE002151	R803R9391J	RC	390 OHM 1/16W
R3611	AE001794	R803R9330J	RC	33 OHM 1/16W
R3613	AE001784	R803R9103J	RC	10K OHM 1/16W
R3614	AE001784	R803R9103J	RC	10K OHM 1/16W
R3615	AE001785	R803R9104J	RC	100K OHM 1/16W
R3616	AE001785	R803R9104J	RC	100K OHM 1/16W
R3617	AE001794	R803R9330J	RC	33 OHM 1/16W
R3618	AE001783	R803R9102J	RC	1K OHM 1/16W
R3619	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R3620	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R3621	AE001783	R803R9102J	RC	1K OHM 1/16W
R3622	AE002153	R803R9820F	RC	82 OHM 1/16W
R3623	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R3624	AE001895	R803R9392J	RC	3.9K OHM 1/16W
R3625	AE001794	R803R9330J	RC	33 OHM 1/16W
R3626	AE001794	R803R9330J	RC	33 OHM 1/16W
R3627	AE001794	R803R9330J	RC	33 OHM 1/16W
R3628	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R3629	AE001798	R803R9560J	RC	56 OHM 1/16W
R3630	AE001790	R803R9222J	RC	2.2K OHM 1/16W
R3631	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R3632	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R3633	AE001899	R803R9750F	RC	75 OHM 1/16W
R3634	AE001899	R803R9750F	RC	75 OHM 1/16W
R3635	AE001899	R803R9750F	RC	75 OHM 1/16W
R3636	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R3637	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R3638	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R3639	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R3640	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R3641	AE001790	R803R9222J	RC	2.2K OHM 1/16W
R3642	AE001783	R803R9102J	RC	1K OHM 1/16W
R3643	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R3644	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R3645	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R3647	AE001784	R803R9103J	RC	10K OHM 1/16W
R3648	AE001794	R803R9330J	RC	33 OHM 1/16W
R3649	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R3650	AE001784	R803R9103J	RC	10K OHM 1/16W
R3651	AE005767	R803R9101F	RC	100 OHM 1/16W
R3652	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R3653	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R3654	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R3655	AE001784	R803R9103J	RC	10K OHM 1/16W
R3656	AE001784	R803R9103J	RC	10K OHM 1/16W
R3657	AE001784	R803R9103J	RC	10K OHM 1/16W
R3658	AE001784	R803R9103J	RC	10K OHM 1/16W
R3659	AE001805	R803R9822J	RC	8.2K OHM 1/16W
R3660	AE001805	R803R9822J	RC	8.2K OHM 1/16W
R3661	AE001784	R803R9103J	RC	10K OHM 1/16W
R3662	AE001784	R803R9103J	RC	10K OHM 1/16W
R3663	AE001783	R803R9102J	RC	1K OHM 1/16W
R3664	AE001783	R803R9102J	RC	1K OHM 1/16W
R3665	AE001781	R803R9101J	RC	100 OHM 1/16W
R3666	AE001781	R803R9101J	RC	100 OHM 1/16W
R3667	AE001783	R803R9102J	RC	1K OHM 1/16W
R3668	AE001783	R803R9102J	RC	1K OHM 1/16W
R3669	AE001794	R803R9330J	RC	33 OHM 1/16W

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.		Description
		RESISTORS		
R3674	AE001799	R803R9562J	RC	5.6K OHM 1/16W
R3675	AE001799	R803R9562J	RC	5.6K OHM 1/16W
R3676	79091400	R803R9393J	RC	39K OHM 1/16W
R3677	79091400	R803R9393J	RC	39K OHM 1/16W
R3678	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R3679	AE001785	R803R9104J	RC	100K OHM 1/16W
R3680	AE002871	R803R9224J	RC	220K OHM 1/16W
R3681	AE001790	R803R9222J	RC	2.2K OHM 1/16W
R3682	AE001781	R803R9101J	RC	100 OHM 1/16W
R3683	AE001781	R803R9101J	RC	100 OHM 1/16W
R3684	AE001781	R803R9101J	RC	100 OHM 1/16W
R3810	AE001784	R803R9103J	RC	10K OHM 1/16W
R3812	AE002150	R803R9333J	RC	33K OHM 1/16W
R3813	AE001891	R803R9223J	RC	22K OHM 1/16W
R3814	AE001891	R803R9223J	RC	22K OHM 1/16W
R3816	AE007833	R81LR7S47F	RC	0.047 OHM 1/10W
R3817	AE007833	R81LR7S47F	RC	0.047 OHM 1/10W
R3818	AE002150	R803R9333J	RC	33K OHM 1/16W
R3819	AE001782	R803R9102F	RC	1K OHM 1/16W
R3820	AE007831	R803R9152F	RC	1.5K OHM 1/16W
R3821	AE007833	R81LR7S47F	RC	0.047 OHM 1/10W
R3822	AE007833	R81LR7S47F	RC	0.047 OHM 1/10W
R3823	AE007833	R81LR7S47F	RC	0.047 OHM 1/10W
R3824	AE005087	R803R9181F	RC	180 OHM 1/16W
R3825	AE000845	R803R9103F	RC	10K OHM 1/16W
R3826	AE002908	R803R9183F	RC	18K OHM 1/16W
R3827	AE001891	R803R9223J	RC	22K OHM 1/16W
R3828	AE002876	R803R9472F	RC	4.7K OHM 1/16W
R3829	AE001893	R803R9332J	RC	3.3K OHM 1/16W
R3830	AE001891	R803R9223J	RC	22K OHM 1/16W
R3831	AE001891	R803R9223J	RC	22K OHM 1/16W
R3832	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R3833	AE002150	R803R9333J	RC	33K OHM 1/16W
R3834	AE007833	R81LR7S47F	RC	0.047 OHM 1/10W
R3835	AE007833	R81LR7S47F	RC	0.047 OHM 1/10W
R3836	AE001784	R803R9103J	RC	10K OHM 1/16W
R3837	AE001782	R803R9102F	RC	1K OHM 1/16W
R3839	AE007832	R803R9302F	RC	3K OHM 1/16W
R3840	AE001801	R803R9682J	RC	6.8K OHM 1/16W
R3841	AE001893	R803R9332J	RC	3.3K OHM 1/16W
R3842	AE005087	R803R9181F	RC	180 OHM 1/16W
R3843	AE001891	R803R9223J	RC	22K OHM 1/16W
R3844	AE001792	R803R9273J	RC	27K OHM 1/16W
R3845	AE001784	R803R9103J	RC	10K OHM 1/16W
R3850	AE001783	R803R9102J	RC	1K OHM 1/16W
R3851	AE001783	R803R9102J	RC	1K OHM 1/16W
R3852	AE002154	R803R9821J	RC	820 OHM 1/16W
R3853	AE001801	R803R9682J	RC	6.8K OHM 1/16W
R3858	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R3859	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R3860	AE001781	R803R9101J	RC	100 OHM 1/16W
R3861	AE001799	R803R9562J	RC	5.6K OHM 1/16W
R3862	AE001891	R803R9223J	RC	22K OHM 1/16W
R3863	AE001797	R803R9473J	RC	47K OHM 1/16W
R3864	AE001784	R803R9103J	RC	10K OHM 1/16W
R3865	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R3866	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R3867	AE001893	R803R9332J	RC	3.3K OHM 1/16W
R3868	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R3869	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R3870	AE001893	R803R9332J	RC	3.3K OHM 1/16W
R3871	AE001893	R803R9332J	RC	3.3K OHM 1/16W
R3872	AE001893	R803R9332J	RC	3.3K OHM 1/16W
R4001	AE001894	R803R9391F	RC	390 OHM 1/16W
R4002	AE001899	R803R9750F	RC	75 OHM 1/16W
R4003	AE001899	R803R9750F	RC	75 OHM 1/16W
R4004	AE001899	R803R9750F	RC	75 OHM 1/16W
R4005	AE001899	R803R9750F	RC	75 OHM 1/16W
R4008	AE001781	R803R9101J	RC	100 OHM 1/16W
R4011	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R4012	AE001887	R803R9105J	RC	1M OHM 1/16W

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.		Description
		RESISTORS		
R4013	AE001283	R803R9470J	RC	47 OHM 1/16W
R4014	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R4018	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R4019	AE001794	R803R9330J	RC	33 OHM 1/16W
R4020	AE001794	R803R9330J	RC	33 OHM 1/16W
R4021	AE001794	R803R9330J	RC	33 OHM 1/16W
R4022	AE002872	R803R9271J	RC	270 OHM 1/16W
R4023	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R4024	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R4025	AE002872	R803R9271J	RC	270 OHM 1/16W
R4026	AE001890	R803R9221J	RC	220 OHM 1/16W
R4027	AE001890	R803R9221J	RC	220 OHM 1/16W
R4031	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R4032	AE001891	R803R9223J	RC	22K OHM 1/16W
R4033	AE001793	R803R92R2J	RC	2.2 OHM 1/16W
R4034	AE001793	R803R92R2J	RC	2.2 OHM 1/16W
R4035	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R4036	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R4037	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R4038	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R4039	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R4040	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R4041	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R4042	AE001781	R803R9101J	RC	100 OHM 1/16W
R4043	AE001784	R803R9103J	RC	10K OHM 1/16W
R4044	AE001891	R803R9223J	RC	22K OHM 1/16W
R4045	AE001783	R803R9102J	RC	1K OHM 1/16W
R4046	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R4048	AE001797	R803R9473J	RC	47K OHM 1/16W
R4049	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R4050	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R4051	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R4052	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R4053	AE001783	R803R9102J	RC	1K OHM 1/16W
R4054	AE001783	R803R9102J	RC	1K OHM 1/16W
R4056	AE001892	R803R9331J	RC	330 OHM 1/16W
R4057	AE001892	R803R9331J	RC	330 OHM 1/16W
R4058	AE001890	R803R9221J	RC	220 OHM 1/16W
R4059	AE001781	R803R9101J	RC	100 OHM 1/16W
R4060	AE001891	R803R9223J	RC	22K OHM 1/16W
R4061	AE001784	R803R9103J	RC	10K OHM 1/16W
R4064	AE001781	R803R9101J	RC	100 OHM 1/16W
R4073	AE001892	R803R9331J	RC	330 OHM 1/16W
R4211	AE001801	R803R9682J	RC	6.8K OHM 1/16W
R4301	AE001784	R803R9103J	RC	10K OHM 1/16W
R4305	AE001803	R803R9750J	RC	75 OHM 1/16W
R4306	AE001803	R803R9750J	RC	75 OHM 1/16W
R4307	AE001784	R803R9103J	RC	10K OHM 1/16W
R4308	AE001803	R803R9750J	RC	75 OHM 1/16W
R4309	AE001784	R803R9103J	RC	10K OHM 1/16W
R4310	AE001803	R803R9750J	RC	75 OHM 1/16W
R4311	AE001801	R803R9682J	RC	6.8K OHM 1/16W
R4312	AE001801	R803R9682J	RC	6.8K OHM 1/16W
R4313	AE001801	R803R9682J	RC	6.8K OHM 1/16W
R4314	AE001801	R803R9682J	RC	6.8K OHM 1/16W
R4315	AE001784	R803R9103J	RC	10K OHM 1/16W
R4316	AE001784	R803R9103J	RC	10K OHM 1/16W
R4317	AE005089	R803R9184J	RC	180K OHM 1/16W
R4318	AE002871	R803R9224J	RC	220K OHM 1/16W
R4319	AE005089	R803R9184J	RC	180K OHM 1/16W
R4320	AE002871	R803R9224J	RC	220K OHM 1/16W
R4322	AE001893	R803R9332J	RC	3.3K OHM 1/16W
R4324	AE001893	R803R9332J	RC	3.3K OHM 1/16W
R4325	AE001784	R803R9103J	RC	10K OHM 1/16W
R4326	AE005089	R803R9184J	RC	180K OHM 1/16W
R4327	AE002871	R803R9224J	RC	220K OHM 1/16W
R4328	AE005089	R803R9184J	RC	180K OHM 1/16W
R4329	AE002871	R803R9224J	RC	220K OHM 1/16W
R4331	AE001893	R803R9332J	RC	3.3K OHM 1/16W
R4333	AE001893	R803R9332J	RC	3.3K OHM 1/16W
R4334	AD302291	R803R9683J	RC	68K OHM 1/16W

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.		Description
		RESISTORS		
R4335	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R4336	AD302291	R803R9683J	RC	68K OHM 1/16W
R4337	AE001803	R803R9750J	RC	75 OHM 1/16W
R4338	AE001803	R803R9750J	RC	75 OHM 1/16W
R4339	AE001893	R803R9332J	RC	3.3K OHM 1/16W
R4340	AE001784	R803R9103J	RC	10K OHM 1/16W
R4341	AE001784	R803R9103J	RC	10K OHM 1/16W
R4342	AE001781	R803R9101J	RC	100 OHM 1/16W
R4343	AE001781	R803R9101J	RC	100 OHM 1/16W
R4344	AE001783	R803R9102J	RC	1K OHM 1/16W
R4345	AE001798	R803R9560J	RC	56 OHM 1/16W
R4346	AE001783	R803R9102J	RC	1K OHM 1/16W
R4347	AE001784	R803R9103J	RC	10K OHM 1/16W
R4348	AE001784	R803R9103J	RC	10K OHM 1/16W
R4349	AE001788	R803R9123J	RC	12K OHM 1/16W
R4350	AE001788	R803R9123J	RC	12K OHM 1/16W
R4351	AE001784	R803R9103J	RC	10K OHM 1/16W
R4352	AE001797	R803R9473J	RC	47K OHM 1/16W
R4353	AE001784	R803R9103J	RC	10K OHM 1/16W
R4354	AE001784	R803R9103J	RC	10K OHM 1/16W
R4355	AE001797	R803R9473J	RC	47K OHM 1/16W
R4356	AE001785	R803R9104J	RC	100K OHM 1/16W
R4357	AE001785	R803R9104J	RC	100K OHM 1/16W
R4358	AE001784	R803R9103J	RC	10K OHM 1/16W
R4361	AE001784	R803R9103J	RC	10K OHM 1/16W
R4362	AE001784	R803R9103J	RC	10K OHM 1/16W
R4363	AE001803	R803R9750J	RC	75 OHM 1/16W
R4401	AE002146	R803R9154J	RC	150K OHM 1/16W
R4403	AE001797	R803R9473J	RC	47K OHM 1/16W
R4406	AE001803	R803R9750J	RC	75 OHM 1/16W
R4407	AE001803	R803R9750J	RC	75 OHM 1/16W
R4408	AE001803	R803R9750J	RC	75 OHM 1/16W
R4409	AE001801	R803R9682J	RC	6.8K OHM 1/16W
R4410	AE001801	R803R9682J	RC	6.8K OHM 1/16W
R4411	AE001801	R803R9682J	RC	6.8K OHM 1/16W
R4412	AE001781	R803R9101J	RC	100 OHM 1/16W
R4413	AE001781	R803R9101J	RC	100 OHM 1/16W
R4415	AE001785	R803R9104J	RC	100K OHM 1/16W
R4416	AE001798	R803R9560J	RC	56 OHM 1/16W
R4419	AE005089	R803R9184J	RC	180K OHM 1/16W
R4420	AE002871	R803R9224J	RC	220K OHM 1/16W
R4421	AE005089	R803R9184J	RC	180K OHM 1/16W
R4422	AE002871	R803R9224J	RC	220K OHM 1/16W
R4423	AE001798	R803R9560J	RC	56 OHM 1/16W
R4426	AE001893	R803R9332J	RC	3.3K OHM 1/16W
R4428	AE001893	R803R9332J	RC	3.3K OHM 1/16W
R4430	AE005089	R803R9184J	RC	180K OHM 1/16W
R4431	AE002871	R803R9224J	RC	220K OHM 1/16W
R4432	AE005089	R803R9184J	RC	180K OHM 1/16W
R4433	AE002871	R803R9224J	RC	220K OHM 1/16W
R4435	AE001893	R803R9332J	RC	3.3K OHM 1/16W
R4437	AE001893	R803R9332J	RC	3.3K OHM 1/16W
R4438	79091390	R002T2101J	RC	100 OHM 1/2W
R4439	79091390	R002T2101J	RC	100 OHM 1/2W
R4440	AE001798	R803R9560J	RC	56 OHM 1/16W
R4441	AE001803	R803R9750J	RC	75 OHM 1/16W
R4442	AE001803	R803R9750J	RC	75 OHM 1/16W
R4443	AE001803	R803R9750J	RC	75 OHM 1/16W
R5003	AE001785	R803R9104J	RC	100K OHM 1/16W
R5004	AE001798	R803R9560J	RC	56 OHM 1/16W
R5005	AE002151	R803R9391J	RC	390 OHM 1/16W
R5006	AE001783	R803R9102J	RC	1K OHM 1/16W
R5007	AE000849	R803R9152J	RC	1.5K OHM 1/16W
R5008	AE001783	R803R9102J	RC	1K OHM 1/16W
R5014	AE001799	R803R9562J	RC	5.6K OHM 1/16W
R5015	AE001799	R803R9562J	RC	5.6K OHM 1/16W
R5016	AE001781	R803R9101J	RC	100 OHM 1/16W
R5017	AE001781	R803R9101J	RC	100 OHM 1/16W
R6605	AE001781	R803R9101J	RC	100 OHM 1/16W
R6606	AE001781	R803R9101J	RC	100 OHM 1/16W
R7201	AE003232	R803R9181J	RC	180 OHM 1/16W

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.		Description
		RESISTORS		
R7202	79091142	R803R9220J	RC	22 OHM 1/16W
R7203	79091142	R803R9220J	RC	22 OHM 1/16W
R8101	AE001887	R803R9105J	RC	1M OHM 1/16W
R8102	AE001887	R803R9105J	RC	1M OHM 1/16W
R8108	AE001784	R803R9103J	RC	10K OHM 1/16W
R8109	AE001887	R803R9105J	RC	1M OHM 1/16W
R8110	AE001887	R803R9105J	RC	1M OHM 1/16W
R8113	AE001785	R803R9104J	RC	100K OHM 1/16W
R8115	AE001801	R803R9682J	RC	6.8K OHM 1/16W
R8116	AE001783	R803R9102J	RC	1K OHM 1/16W
R8117	AE001796	R803R9471J	RC	470 OHM 1/16W
R8119	79091406	R803R9824J	RC	820K OHM 1/16W
R8121	AE002150	R803R9333J	RC	33K OHM 1/16W
R8122	AE001783	R803R9102J	RC	1K OHM 1/16W
R8123	AE002532	R803R9272J	RC	2.7K OHM 1/16W
R8124	AE001781	R803R9101J	RC	100 OHM 1/16W
R8125	AE001788	R803R9123J	RC	12K OHM 1/16W
R8126	AE001781	R803R9101J	RC	100 OHM 1/16W
R8127	AE001783	R803R9102J	RC	1K OHM 1/16W
R8128	AE001788	R803R9123J	RC	12K OHM 1/16W
R8129	AE001893	R803R9332J	RC	3.3K OHM 1/16W
R8130	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R8131	AE001783	R803R9102J	RC	1K OHM 1/16W
R8133	AE002147	R803R9182J	RC	1.8K OHM 1/16W
R8134	AE002147	R803R9182J	RC	1.8K OHM 1/16W
R8137	AE001783	R803R9102J	RC	1K OHM 1/16W
R8512	AE001793	R803R92R2J	RC	2.2 OHM 1/16W
R8513	AE001793	R803R92R2J	RC	2.2 OHM 1/16W
R8529	AD302345	R803R9472J	RC	4.7K OHM 1/16W
R8555	AE001797	R803R9473J	RC	47K OHM 1/16W
		CAPACITORS		
C101	AE005444	E61UM0221D	CE	220 UF 6.3V
C104	AE000838	CS0PB0N16K	CC	1 UF 10V B
C106	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C107	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C109	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C110	AE005444	E61UM0221D	CE	220 UF 6.3V
C111	79091061	CS0PCH4G1J	CC	18 PF 50V CH
C113	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C114	79091061	CS0PCH4G1J	CC	18 PF 50V CH
C116	AE005444	E61UM0221D	CE	220 UF 6.3V
C117	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C118	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C123	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C125	AE007811	E61UM0101D	CE	100 UF 6.3V
C126	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C127	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C128	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C131	AE005074	E61UM5R47D	CE	0.47 UF 50V
C136	AE007818	E61UM52R2D	CE	2.2 UF 50V
C139	AE000838	CS0PB0N16K	CC	1 UF 10V B
C303	AE001544	E50HU3100M	CE	10 UF 25 V
C304	AE001725	CS0PB0413K	CC	0.001 UF 50V B
C305	79091097	E50HU2101M	CE	100 UF 16 V
C307	AD301762	E50HU52R2M	CE	2.2 UF 50V
C308	AE007805	E00NU5R47M	CE	0.47 UF 50 V
C309	AE000838	CS0PB0N16K	CC	1 UF 10V B
C310	AE000838	CS0PB0N16K	CC	1 UF 10V B
C311	79091093	E00NU52R2M	CE	2.2 UF 50V
C312	AE001725	CS0PB0413K	CC	0.001 UF 50V B
C313	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C314	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C315	AE000272	E50HU2470M	CE	47 UF 16V
C316	BZ110043	E02LU3221M	CE	220 UF 25V
C317	BZ110032	E5EZF3102M	CE	1000 UF 25V
C318	AE002879	CS0PB03Q4K	CC	0.047 UF 25V B
C319	AD301762	E50HU52R2M	CE	2.2 UF 50V
C320	AE002493	CS0PB04L3K	CC	0.0033UF 50V B
C326	AE001725	CS0PB0413K	CC	0.001 UF 50V B
C327	AE001544	E50HU3100M	CE	10 UF 25 V
C328	79091097	E50HU2101M	CE	100 UF 16 V

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.		Description
		CAPACITORS		
C329	AD301762	E50HU52R2M	CE	2.2 UF 50V
C330	AE007805	E00NU5R47M	CE	0.47 UF 50 V
C331	AE000838	CS0PB0N16K	CC	1 UF 10V B
C332	AE000838	CS0PB0N16K	CC	1 UF 10V B
C333	79091093	E00NU52R2M	CE	2.2 UF 50V
C334	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C335	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C336	AE001725	CS0PB0413K	CC	0.001 UF 50V B
C337	AE000272	E50HU2470M	CE	47 UF 16V
C338	BZ110043	E02LU3221M	CE	220 UF 25V
C339	AE002879	CS0PB03Q4K	CC	0.047 UF 25V B
C340	AE001727	CS0PB04H3K	CC	0.0022UF 50V B
C341	AD301762	E50HU52R2M	CE	2.2 UF 50V
C342	AE002493	CS0PB04L3K	CC	0.0033UF 50V B
C344	AE000928	E50HU2330M	CE	33 UF 16 V
C348	AE001727	CS0PB04H3K	CC	0.0022UF 50V B
C810	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C812	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C813	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C814	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C815	AE005444	E61UM0221D	CE	220 UF 6.3V
C816	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C817	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C818	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C819	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C820	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C821	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C822	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C823	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C824	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C826	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C827	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C830	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C832	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C834	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C835	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C836	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C837	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C838	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C839	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C840	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C841	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C842	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C843	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C844	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C845	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C846	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C847	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C849	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C850	AE005444	E61UM0221D	CE	220 UF 6.3V
C851	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C852	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C853	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C855	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C856	AE005444	E61UM0221D	CE	220 UF 6.3V
C857	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C858	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C859	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C860	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C861	AE004237	CS0PCH450C	CC	5 PF 50V CH
C862	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C863	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C868	AE004237	CS0PCH450C	CC	5 PF 50V CH
C870	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C871	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C872	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C873	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C875	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C876	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C877	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C878	AE002124	CS0PB0315K	CC	0.1 UF 25V B

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.		Description
		CAPACITORS		
C879	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C883	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C884	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C886	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C887	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C888	AE001725	CS0PB0413K	CC	0.001 UF 50V B
C889	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C891	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C892	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C893	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C894	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C895	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C896	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C897	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C898	AE005444	E61UM0221D	CE	220 UF 6.3V
C902	AE002830	CS0PCH4L1J	CC	33 PF 50V CH
C904	79091070	CS0PCH4U1J	CC	68 PF 50V CH
C2103	AE007811	E61UM0101D	CE	100 UF 6.3V
C2105	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2106	AE007811	E61UM0101D	CE	100 UF 6.3V
C2108	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2109	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2110	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2111	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2112	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2113	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2116	AE002494	CS0PB04N3K	CC	0.0039UF 50V B
C2120	AE005067	CS0PB03N4K	CC	0.039 UF 25V B
C2121	AE005444	E61UM0221D	CE	220 UF 6.3V
C2124	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2125	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2126	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2127	AE005444	E61UM0221D	CE	220 UF 6.3V
C2129	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2130	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2131	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2132	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2133	AE005444	E61UM0221D	CE	220 UF 6.3V
C2136	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2137	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2138	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2139	AE002879	CS0PB03Q4K	CC	0.047 UF 25V B
C2140	AE002830	CS0PCH4L1J	CC	33 PF 50V CH
C2143	AE002879	CS0PB03Q4K	CC	0.047 UF 25V B
C2144	AE002879	CS0PB03Q4K	CC	0.047 UF 25V B
C2145	AE001725	CS0PB0413K	CC	0.001 UF 50V B
C2146	AE000840	CS0PCH4K1J	CC	27 PF 50V CH
C2149	AE005444	E61UM0221D	CE	220 UF 6.3V
C2150	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2151	AE001729	CS0PCH412J	CC	100 PF 50V CH
C2201	BZ110243	CQGTB0414K	CC	0.01 UF 50V B
C2202	BZ110243	CQGTB0414K	CC	0.01 UF 50V B
C2209	BZ110150	E50HU0101M	CE	100 UF 6.3V
C2212	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2301	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2302	AE001733	CS0PCH4H2J	CC	220 PF 50V CH
C2303	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C2304	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2305	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2306	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2307	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2308	AE001727	CS0PB04H3K	CC	0.0022UF 50V B
C2309	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2310	AE001727	CS0PB04H3K	CC	0.0022UF 50V B
C2311	AE001727	CS0PB04H3K	CC	0.0022UF 50V B
C2312	AE001731	CS0PCH4G2J	CC	180 PF 50V CH
C2314	AE003855	CS0PCH4B2J	CC	120 PF 50V CH
C2316	AE002824	CS0PB04H4K	CC	0.022 UF 50V B
C2318	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C2320	BZ210177	E02LU2470M	CE	47 UF 16V
C2321	BZ110229	E02LU4220M	CE	22 UF 35V

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.		Description
		CAPACITORS		
C2322	BZ210177	E02LU2470M	CE	47 UF 16V
C2323	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2324	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2325	79091097	E50HU2101M	CE	100 UF 16 V
C2326	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2329	BZ110263	E50HU2220M	CE	22 UF 16 V
C2330	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2331	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C2332	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2333	BZ110263	E50HU2220M	CE	22 UF 16 V
C2334	BZ110263	E50HU2220M	CE	22 UF 16 V
C2339	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C2603	AE001727	CS0PB04H3K	CC	0.0022UF 50V B
C2604	AE001727	CS0PB04H3K	CC	0.0022UF 50V B
C2605	AE001727	CS0PB04H3K	CC	0.0022UF 50V B
C2606	AE001727	CS0PB04H3K	CC	0.0022UF 50V B
C2607	AE002830	CS0PCH4L1J	CC	33 PF 50V CH
C2608	AE001768	E50HU0221M	CE	220 UF 6.3V
C2609	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C2610	AE000837	CS0PB04U3K	CC	0.0068UF 50V B
C2611	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C2612	AE002824	CS0PB04H4K	CC	0.022 UF 50V B
C2613	AE001733	CS0PCH4H2J	CC	220 PF 50V CH
C2614	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2615	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C2616	AE002831	CS0PCH4Q2J	CC	470 PF 50V CH
C2617	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2618	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2619	AE002832	CS0PCH4S2J	CC	560 PF 50V CH
C2620	AE000836	CS0PB04S3K	CC	0.0056UF 50V B
C2621	AE000836	CS0PB04S3K	CC	0.0056UF 50V B
C2622	AE000836	CS0PB04S3K	CC	0.0056UF 50V B
C2623	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C2624	AE001725	CS0PB0413K	CC	0.001 UF 50V B
C2625	AE001725	CS0PB0413K	CC	0.001 UF 50V B
C2626	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C2627	AE000835	CS0PB03L4K	CC	0.033 UF 25V B
C2628	AE001725	CS0PB0413K	CC	0.001 UF 50V B
C2629	AE001725	CS0PB0413K	CC	0.001 UF 50V B
C2630	AE000838	CS0PB0N16K	CC	1 UF 10V B
C2631	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C2632	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C2633	AE001725	CS0PB0413K	CC	0.001 UF 50V B
C2634	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C2635	AE001725	CS0PB0413K	CC	0.001 UF 50V B
C2636	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C2637	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C2638	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C2639	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C2640	BZ110150	E50HU0101M	CE	100 UF 6.3V
C2641	BZ110150	E50HU0101M	CE	100 UF 6.3V
C2642	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C2643	AE001543	E50HU0470M	CE	47 UF 6.3V
C2644	AE001543	E50HU0470M	CE	47 UF 6.3V
C2645	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C2646	AE001543	E50HU0470M	CE	47 UF 6.3V
C2647	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C2648	AE000838	CS0PB0N16K	CC	1 UF 10V B
C2654	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C2655	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C3001	AE005079	E62FT3331M	CE	330 UF 25V
C3002	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C3004	AE000838	CS0PB0N16K	CC	1 UF 10V B
C3005	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C3006	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C3007	AE002831	CS0PCH4Q2J	CC	470 PF 50V CH
C3008	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C3009	AE000838	CS0PB0N16K	CC	1 UF 10V B
C3011	AE005079	E62FT3331M	CE	330 UF 25V
C3012	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C3014	AE001275	CS0PF0415Z	CC	0.1 UF 50V F

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.		Description
		CAPACITORS		
C3015	AE005080	E62FU0331M	CE	330 UF 6.3V
C3016	AE002708	E5EZU2101M	CE	100 UF 16V
C3017	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C3018	AE001737	CS0PF0N16Z	CC	1 UF 10V F
C3019	AE005070	E5EZU0221M	CE	220 UF 6.3V
C3020	AE005080	E62FU0331M	CE	330 UF 6.3V
C3021	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C3022	AE002708	E5EZU2101M	CE	100 UF 16V
C3023	AE002708	E5EZU2101M	CE	100 UF 16V
C3024	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C3025	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C3032	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C3201	AE002831	CS0PCH4Q2J	CC	470 PF 50V CH
C3202	AE002831	CS0PCH4Q2J	CC	470 PF 50V CH
C3204	AE002831	CS0PCH4Q2J	CC	470 PF 50V CH
C3205	AE002831	CS0PCH4Q2J	CC	470 PF 50V CH
C3206	AE002831	CS0PCH4Q2J	CC	470 PF 50V CH
C3207	AE002831	CS0PCH4Q2J	CC	470 PF 50V CH
C3209	AE007813	E61UM2221D	CE	220 UF 16V
C3211	AE001737	CS0PF0N16Z	CC	1 UF 10V F
C3212	AE001737	CS0PF0N16Z	CC	1 UF 10V F
C3213	AE007811	E61UM0101D	CE	100 UF 6.3V
C3215	AE001737	CS0PF0N16Z	CC	1 UF 10V F
C3216	AE001737	CS0PF0N16Z	CC	1 UF 10V F
C3217	AE007811	E61UM0101D	CE	100 UF 6.3V
C3218	AE007258	CS0PB0NH6K	CC	2.2 UF 10V B
C3219	AE007258	CS0PB0NH6K	CC	2.2 UF 10V B
C3221	AE007258	CS0PB0NH6K	CC	2.2 UF 10V B
C3601	AE002831	CS0PCH4Q2J	CC	470 PF 50V CH
C3602	AE002831	CS0PCH4Q2J	CC	470 PF 50V CH
C3604	AE001544	E50HU3100M	CE	10 UF 25 V
C3605	AE001725	CS0PB0413K	CC	0.001 UF 50V B
C3606	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C3607	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C3608	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C3609	AE001725	CS0PB0413K	CC	0.001 UF 50V B
C3610	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C3611	AE001544	E50HU3100M	CE	10 UF 25 V
C3612	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C3613	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C3614	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C3615	AE001544	E50HU3100M	CE	10 UF 25 V
C3616	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C3617	AE001725	CS0PB0413K	CC	0.001 UF 50V B
C3618	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C3619	AE001725	CS0PB0413K	CC	0.001 UF 50V B
C3620	AE001725	CS0PB0413K	CC	0.001 UF 50V B
C3621	AE001725	CS0PB0413K	CC	0.001 UF 50V B
C3622	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C3623	AE002132	CS0PF04Q4Z	CC	0.047 UF 50V F
C3624	AE007797	CS0SB0217K	CC	10 UF 16V B
C3625	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C3626	AE001725	CS0PB0413K	CC	0.001 UF 50V B
C3627	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C3628	BZ110263	E50HU2220M	CE	22 UF 16 V
C3629	AE001544	E50HU3100M	CE	10 UF 25 V
C3630	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C3632	AE001544	E50HU3100M	CE	10 UF 25 V
C3633	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C3634	BZ110263	E50HU2220M	CE	22 UF 16 V
C3635	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C3636	BZ110263	E50HU2220M	CE	22 UF 16 V
C3637	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C3638	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C3639	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C3640	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C3642	AE002129	CS0PCH4E1J	CC	15 PF 50V CH
C3643	AE002129	CS0PCH4E1J	CC	15 PF 50V CH
C3644	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C3645	AE001737	CS0PF0N16Z	CC	1 UF 10V F
C3646	AE001275	CS0PF0415Z	CC	0.1 UF 50V F

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.		Description
		CAPACITORS		
C3647	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C3648	AE001544	E50HU3100M	CE	10 UF 25 V
C3649	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C3650	AE001732	CS0PCH4H1J	CC	22 PF 50V CH
C3651	AE001732	CS0PCH4H1J	CC	22 PF 50V CH
C3652	AE001732	CS0PCH4H1J	CC	22 PF 50V CH
C3653	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C3654	BZ110263	E50HU2220M	CE	22 UF 16 V
C3655	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C3656	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C3657	AE001737	CS0PF0N16Z	CC	1 UF 10V F
C3658	BZ110150	E50HU0101M	CE	100 UF 6.3V
C3659	BZ110150	E50HU0101M	CE	100 UF 6.3V
C3661	BZ110263	E50HU2220M	CE	22 UF 16 V
C3663	AE000328	CS0RF0316Z	CC	1 UF 25V F
C3664	AE000328	CS0RF0316Z	CC	1 UF 25V F
C3665	AE001735	CS0PCH4W2J	CC	820 PF 50V CH
C3666	AE001735	CS0PCH4W2J	CC	820 PF 50V CH
C3667	AE002822	CS0PB04E3K	CC	0.0015UF 50V B
C3668	AE002822	CS0PB04E3K	CC	0.0015UF 50V B
C3669	AE001732	CS0PCH4H1J	CC	22 PF 50V CH
C3670	AE001732	CS0PCH4H1J	CC	22 PF 50V CH
C3671	AE001729	CS0PCH412J	CC	100 PF 50V CH
C3672	AE001729	CS0PCH412J	CC	100 PF 50V CH
C3673	AE001544	E50HU3100M	CE	10 UF 25 V
C3674	AE001544	E50HU3100M	CE	10 UF 25 V
C3675	AE001544	E50HU3100M	CE	10 UF 25 V
C3676	AE001544	E50HU3100M	CE	10 UF 25 V
C3677	AE002822	CS0PB04E3K	CC	0.0015UF 50V B
C3678	AE002822	CS0PB04E3K	CC	0.0015UF 50V B
C3679	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C3681	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C3682	AE007796	CS0PF0216Z	CC	1 UF 16V F
C3683	AE007796	CS0PF0216Z	CC	1 UF 16V F
C3684	AE007797	CS0SB0217K	CC	10 UF 16V B
C3685	AE007797	CS0SB0217K	CC	10 UF 16V B
C3806	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C3807	AD301348	E02LU5100M	CE	10 UF 50V
C3809	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C3811	AD300788	E02LU5010M	CE	1 UF 50V
C3812	AE007913	E61FF2272D	CE	2700 UF 16V
C3813	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C3815	AE002879	CS0PB03Q4K	CC	0.047 UF 25V B
C3816	BZ110190	E02LU2221M	CE	220 UF 16V
C3817	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C3818	AE000840	CS0PCH4K1J	CC	27 PF 50V CH
C3820	AD301535	E02LU2101M	CE	100 UF 16V
C3821	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C3822	AD301535	E02LU2101M	CE	100 UF 16V
C3823	AE002879	CS0PB03Q4K	CC	0.047 UF 25V B
C3824	AE005071	E61FT2681D	CE	680 UF 16V
C3825	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C3826	AE000840	CS0PCH4K1J	CC	27 PF 50V CH
C3827	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C3830	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C3832	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C3834	79091383	CS0PCH4K2J	CC	270 PF 50V CH
C3835	AE005071	E61FT2681D	CE	680 UF 16V
C3836	AE007914	P1S3T0102J	CP	0.001 UF 50V
C3837	BZ110190	E02LU2221M	CE	220 UF 16V
C3838	AE005071	E61FT2681D	CE	680 UF 16V
C3839	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C3840	AE005071	E61FT2681D	CE	680 UF 16V
C3841	BZ110250	E02L02102M	CE	1000 UF 16V
C3842	AE002879	CS0PB03Q4K	CC	0.047 UF 25V B
C3843	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C3844	AE000840	CS0PCH4K1J	CC	27 PF 50V CH
C3845	79091097	E50HU2101M	CE	100 UF 16 V
C3846	AE001727	CS0PB04H3K	CC	0.0022UF 50V B
C3847	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C3848	AE001726	CS0PB0414K	CC	0.01 UF 50V B

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.		Description
		CAPACITORS		
C3851	AE001133	CQGTF04Q5Z	CC	0.47 UF 50V F
C3853	AE001730	CS0PCH4E2J	CC	150 PF 50V CH
C3854	AE002123	CQGTF0416Z	CC	1 UF 50V F
C3855	AE001133	CQGTF04Q5Z	CC	0.47 UF 50V F
C3856	AE000467	E02LU54R7M	CE	4.7 UF 50V
C3858	AE007258	CS0PB0NH6K	CC	2.2 UF 10V B
C3859	AE001133	CQGTF04Q5Z	CC	0.47 UF 50V F
C3860	AE000467	E02LU54R7M	CE	4.7 UF 50V
C3861	AE005071	E61FT2681D	CE	680 UF 16V
C3862	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C3863	AE007258	CS0PB0NH6K	CC	2.2 UF 10V B
C3864	AE007258	CS0PB0NH6K	CC	2.2 UF 10V B
C3865	AE007258	CS0PB0NH6K	CC	2.2 UF 10V B
C3866	AE007258	CS0PB0NH6K	CC	2.2 UF 10V B
C3870	BZ110135	E02L02222M	CE	2200 UF 16V
C3871	AE005068	CS0PB0415K	CC	0.1 UF 50V B
C3872	AE002824	CS0PB04H4K	CC	0.022 UF 50V B
C3883	AE005068	CS0PB0415K	CC	0.1 UF 50V B
C4001	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4002	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4003	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4004	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4005	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4006	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4007	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4008	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4010	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4011	AE000336	E02LU1101M	CE	100 UF 10V
C4012	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4013	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4014	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4016	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4017	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4018	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4019	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4020	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4022	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4023	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4024	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4025	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4026	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4027	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4028	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4029	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4030	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4031	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C4032	AE001725	CS0PB0413K	CC	0.001 UF 50V B
C4033	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4034	AE004237	CS0PCH450C	CC	5 PF 50V CH
C4035	AE004238	CS0PCH4F1J	CC	16 PF 50V CH
C4036	AE002825	CS0PCH411D	CC	10 PF 50V CH
C4037	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4038	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C4039	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4040	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4041	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4042	AE002825	CS0PCH411D	CC	10 PF 50V CH
C4045	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4046	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4047	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4050	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4051	BZ110143	E02LU0221M	CE	220 UF 6.3V
C4052	BZ110143	E02LU0221M	CE	220 UF 6.3V
C4056	AE002825	CS0PCH411D	CC	10 PF 50V CH
C4062	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4063	BZ110143	E02LU0221M	CE	220 UF 6.3V
C4064	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4067	BZ210177	E02LU2470M	CE	47 UF 16V
C4068	AE003896	E5EZU2470M	CE	47 UF 16V
C4069	AE003896	E5EZU2470M	CE	47 UF 16V
C4070	AE003896	E5EZU2470M	CE	47 UF 16V

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.		Description
		CAPACITORS		
C4071	AE003896	E5EZU2470M	CE	47 UF 16V
C4072	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4073	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4074	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4075	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4076	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4077	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4078	AE000336	E02LU1101M	CE	100 UF 10V
C4081	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4082	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4083	AE000336	E02LU1101M	CE	100 UF 10V
C4085	AE001725	CS0PB0413K	CC	0.001 UF 50V B
C4086	AE001725	CS0PB0413K	CC	0.001 UF 50V B
C4088	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C4089	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C4090	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C4093	AE001729	CS0PCH412J	CC	100 PF 50V CH
C4094	AE001729	CS0PCH412J	CC	100 PF 50V CH
C4095	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C4096	AE001725	CS0PB0413K	CC	0.001 UF 50V B
C4099	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C4312	AE000838	CS0PB0N16K	CC	1 UF 10V B
C4313	AE000838	CS0PB0N16K	CC	1 UF 10V B
C4314	AE000838	CS0PB0N16K	CC	1 UF 10V B
C4315	AE000838	CS0PB0N16K	CC	1 UF 10V B
C4322	AE007811	E61UM0101D	CE	100 UF 6.3V
C4323	AE007812	E61UM2101D	CE	100 UF 16V
C4324	AE007812	E61UM2101D	CE	100 UF 16V
C4325	AE001733	CS0PCH4H2J	CC	220 PF 50V CH
C4326	AE007819	E61UM54R7D	CE	4.7 UF 50V
C4327	AE005444	E61UM0221D	CE	220 UF 6.3V
C4328	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C4329	AE007817	E61UM5220D	CE	22 UF 50V
C4330	AE007818	E61UM52R2D	CE	2.2 UF 50V
C4331	AE007818	E61UM52R2D	CE	2.2 UF 50V
C4332	AE000838	CS0PB0N16K	CC	1 UF 10V B
C4333	AE000838	CS0PB0N16K	CC	1 UF 10V B
C4334	AE000838	CS0PB0N16K	CC	1 UF 10V B
C4336	AE000838	CS0PB0N16K	CC	1 UF 10V B
C4337	AE007812	E61UM2101D	CE	100 UF 16V
C4339	AE007812	E61UM2101D	CE	100 UF 16V
C4340	AE007817	E61UM5220D	CE	22 UF 50V
C4342	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C4344	AE001729	CS0PCH412J	CC	100 PF 50V CH
C4345	AE001725	CS0PB0413K	CC	0.001 UF 50V B
C4347	AE001725	CS0PB0413K	CC	0.001 UF 50V B
C4349	AE001729	CS0PCH412J	CC	100 PF 50V CH
C4350	AE000838	CS0PB0N16K	CC	1 UF 10V B
C4351	AE000838	CS0PB0N16K	CC	1 UF 10V B
C4352	AE000838	CS0PB0N16K	CC	1 UF 10V B
C4353	AE000838	CS0PB0N16K	CC	1 UF 10V B
C4354	AE007815	E61UM4330D	CE	33 UF 35V
C4355	AE001735	CS0PCH4W2J	CC	820 PF 50V CH
C4356	AE001735	CS0PCH4W2J	CC	820 PF 50V CH
C4357	AE000838	CS0PB0N16K	CC	1 UF 10V B
C4358	AE000838	CS0PB0N16K	CC	1 UF 10V B
C4360	AE007822	E717M4100D	CE	10 UF 35V
C4361	AE007822	E717M4100D	CE	10 UF 35V
C4372	AE002831	CS0PCH4Q2J	CC	470 PF 50V CH
C4378	AE002831	CS0PCH4Q2J	CC	470 PF 50V CH
C4403	AD300511	E02LT0222M	CE	2200 UF 6.3V
C4407	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C4408	BZ110255	CQGTB0415K	CC	0.1 UF 50V B
C4409	AD301434	E02LU4101M	CE	100 UF 35V
C4410	79091068	CS0PCH4S1J	CC	56 PF 50V CH
C4411	79091068	CS0PCH4S1J	CC	56 PF 50V CH
C4418	AE001725	CS0PB0413K	CC	0.001 UF 50V B
C4419	AE000840	CS0PCH4K1J	CC	27 PF 50V CH
C4420	AE001725	CS0PB0413K	CC	0.001 UF 50V B
C4422	AE000838	CS0PB0N16K	CC	1 UF 10V B
C4423	AE000838	CS0PB0N16K	CC	1 UF 10V B

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.		Description
		CAPACITORS		
C4424	AE000838	CS0PB0N16K	CC	1 UF 10V B
C4425	AE000838	CS0PB0N16K	CC	1 UF 10V B
C4426	AD301535	E02LU2101M	CE	100 UF 16V
C4427	AD301535	E02LU2101M	CE	100 UF 16V
C4428	79091070	CS0PCH4U1J	CC	68 PF 50V CH
C4429	79091070	CS0PCH4U1J	CC	68 PF 50V CH
C4430	79091070	CS0PCH4U1J	CC	68 PF 50V CH
C5002	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C5005	AE001729	CS0PCH412J	CC	100 PF 50V CH
C5007	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C5011	AE007258	CS0PB0NH6K	CC	2.2 UF 10V B
C5012	AE007258	CS0PB0NH6K	CC	2.2 UF 10V B
C5013	AE002824	CS0PB04H4K	CC	0.022 UF 50V B
C5014	AD301535	E02LU2101M	CE	100 UF 16V
C5015	AE007258	CS0PB0NH6K	CC	2.2 UF 10V B
C5017	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C5018	AD301535	E02LU2101M	CE	100 UF 16V
C5023	AE002130	CS0PCH4Q1J	CC	47 PF 50V CH
C5024	AE002130	CS0PCH4Q1J	CC	47 PF 50V CH
C6601	AD301348	E02LU5100M	CE	10 UF 50V
C6602	AD301348	E02LU5100M	CE	10 UF 50V
C6603	AE000333	E00NU2220M	CE	22 UF 16 V
C6604	AE002831	CS0PCH4Q2J	CC	470 PF 50V CH
C6605	AD301348	E02LU5100M	CE	10 UF 50V
C6606	AE000333	E00NU2220M	CE	22 UF 16 V
C6607	AE002822	CS0PB04E3K	CC	0.0015UF 50V B
C6609	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C6610	BZ110217	E50HU53R3M	CE	3.3 UF 50V
C6611	BZ110205	E02LU5220M	CE	22 UF 50V
C6612	BZ110205	E02LU5220M	CE	22 UF 50V
C6613	AE002882	CS0PB0NL5K	CC	0.33 UF 10V B
C6614	AE002882	CS0PB0NL5K	CC	0.33 UF 10V B
C6615	BZ110187	E02LT0102M	CE	1000 UF 6.3V
C6616	AE002882	CS0PB0NL5K	CC	0.33 UF 10V B
C6617	AE002882	CS0PB0NL5K	CC	0.33 UF 10V B
C6618	AE002882	CS0PB0NL5K	CC	0.33 UF 10V B
C6619	AE002822	CS0PB04E3K	CC	0.0015UF 50V B
C6620	AE002882	CS0PB0NL5K	CC	0.33 UF 10V B
C6621	AE002831	CS0PCH4Q2J	CC	470 PF 50V CH
C6622	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C6623	AE001733	CS0PCH4H2J	CC	220 PF 50V CH
C6624	AD301348	E02LU5100M	CE	10 UF 50V
C6626	AE001732	CS0PCH4H1J	CC	22 PF 50V CH
C6627	AE001732	CS0PCH4H1J	CC	22 PF 50V CH
C6628	AE002822	CS0PB04E3K	CC	0.0015UF 50V B
C6629	AD301348	E02LU5100M	CE	10 UF 50V
C6630	AE002831	CS0PCH4Q2J	CC	470 PF 50V CH
C6631	79091068	CS0PCH4S1J	CC	56 PF 50V CH
C6632	79091068	CS0PCH4S1J	CC	56 PF 50V CH
C6633	79091068	CS0PCH4S1J	CC	56 PF 50V CH
C6634	AE002128	CS0PCH480D	CC	8 PF 50V CH
C6635	AE002128	CS0PCH480D	CC	8 PF 50V CH
C7201	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C7202	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C7203	AE005444	E61UM0221D	CE	220 UF 6.3V
C7204	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C7205	AE005444	E61UM0221D	CE	220 UF 6.3V
C7206	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C7207	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C7208	AE005444	E61UM0221D	CE	220 UF 6.3V
C7209	AE005444	E61UM0221D	CE	220 UF 6.3V
C7210	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C7212	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C7213	AE007816	E61UM5010D	CE	1 UF 50V
C7215	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C7217	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C7219	AE005076	E61UMQ331D	CE	330 UF 4V
C7224	AE007813	E61UM2221D	CE	220 UF 16V
C7238	AE007258	CS0PB0NH6K	CC	2.2 UF 10V B
C7239	AE007258	CS0PB0NH6K	CC	2.2 UF 10V B
C7240	AE007258	CS0PB0NH6K	CC	2.2 UF 10V B

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.		Description
		CAPACITORS		
C7241	AE007258	CS0PB0NH6K	CC	2.2 UF 10V B
C7242	AE007258	CS0PB0NH6K	CC	2.2 UF 10V B
C8101	AE007814	E61UM2470D	CE	47 UF 16V
C8102	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C8103	AE007820	E61UM5R22D	CE	0.22 UF 50V
C8104	AE007820	E61UM5R22D	CE	0.22 UF 50V
C8105	AE005073	E61UM2100D	CE	10 UF 16V
C8106	AE005073	E61UM2100D	CE	10 UF 16V
C8107	AE005073	E61UM2100D	CE	10 UF 16V
C8108	AE005073	E61UM2100D	CE	10 UF 16V
C8112	AE007258	CS0PB0NH6K	CC	2.2 UF 10V B
C8113	AE007258	CS0PB0NH6K	CC	2.2 UF 10V B
C8114	AE000838	CS0PB0N16K	CC	1 UF 10V B
C8115	AE005073	E61UM2100D	CE	10 UF 16V
C8116	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C8117	AE007820	E61UM5R22D	CE	0.22 UF 50V
C8118	AE005073	E61UM2100D	CE	10 UF 16V
C8119	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C8120	AE007811	E61UM0101D	CE	100 UF 6.3V
C8123	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C8124	AE007812	E61UM2101D	CE	100 UF 16V
C8125	AE005073	E61UM2100D	CE	10 UF 16V
C8126	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C8127	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C8128	AE000838	CS0PB0N16K	CC	1 UF 10V B
C8129	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C8130	AE001732	CS0PCH4H1J	CC	22 PF 50V CH
C8131	AE007812	E61UM2101D	CE	100 UF 16V
C8132	AE005073	E61UM2100D	CE	10 UF 16V
C8133	AE000838	CS0PB0N16K	CC	1 UF 10V B
C8134	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C8135	AE005073	E61UM2100D	CE	10 UF 16V
C8136	AE003854	CS0PCH4B1J	CC	12 PF 50V CH
C8137	79091384	CS0PCH4L2J	CC	330 PF 50V CH
C8138	AE001727	CS0PB04H3K	CC	0.0022UF 50V B
C8139	AE007820	E61UM5R22D	CE	0.22 UF 50V
C8144	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C8146	AE000838	CS0PB0N16K	CC	1 UF 10V B
C8147	AE001735	CS0PCH4W2J	CC	820 PF 50V CH
C8153	AE007812	E61UM2101D	CE	100 UF 16V
C8154	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C8155	AE007258	CS0PB0NH6K	CC	2.2 UF 10V B
C8156	AE007258	CS0PB0NH6K	CC	2.2 UF 10V B
C8157	AE007258	CS0PB0NH6K	CC	2.2 UF 10V B
C8158	AE007258	CS0PB0NH6K	CC	2.2 UF 10V B
C8159	AE007258	CS0PB0NH6K	CC	2.2 UF 10V B
C8160	AE007258	CS0PB0NH6K	CC	2.2 UF 10V B
C8504	AE001730	CS0PCH4E2J	CC	150 PF 50V CH
C8505	AE003854	CS0PCH4B1J	CC	12 PF 50V CH
C8506	AE001730	CS0PCH4E2J	CC	150 PF 50V CH
C8507	AE001730	CS0PCH4E2J	CC	150 PF 50V CH
C8508	AE003854	CS0PCH4B1J	CC	12 PF 50V CH
C8509	AE001730	CS0PCH4E2J	CC	150 PF 50V CH
C8510	AE001730	CS0PCH4E2J	CC	150 PF 50V CH
C8511	AE003854	CS0PCH4B1J	CC	12 PF 50V CH
C8512	AE001730	CS0PCH4E2J	CC	150 PF 50V CH
C8519	AE000336	E02LU1101M	CE	100 UF 10V
C8520	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C8521	AD301348	E02LU5100M	CE	10 UF 50V
C8522	BZ110189	E02LU0471M	CE	470 UF 6.3V
C8523	BZ110189	E02LU0471M	CE	470 UF 6.3V
C8524	BZ110189	E02LU0471M	CE	470 UF 6.3V
C8564	AE002825	CS0PCH411D	CC	10 PF 50V CH
C8566	AE002130	CS0PCH4Q1J	CC	47 PF 50V CH
		DIODES		
D101	AE004795	DE7RB5R62B	DIODE,ZENER	UDZS5.6B TE-17
D105	AE007801	DD7R20S300	DIODE,SCHOTTKY BARRIER	RB520S-30-TE61
D106	AE004795	DE7RB5R62B	DIODE,ZENER	UDZS5.6B TE-17
D109	AE007801	DD7R20S300	DIODE,SCHOTTKY BARRIER	RB520S-30-TE61
D301	BZ410010	D28T21DQN9	DIODE,SCHOTTKY	21DQ09N-TA2B1
D302	BZ410010	D28T21DQN9	DIODE,SCHOTTKY	21DQ09N-TA2B1

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
		DIODES		
D2201	BZ410087	0021E2Q140	LED	LTL-1CHEE-002A
D2601	BZ410121	DDARDS1200	DIODE,SILICON	KDS120RTK
D2602	AE004646	DE5RB2R21X	DIODE,ZENER	02DZ2.2-X(TH3ORION
D3001	AE004643	D28R1QS040	DIODE	EC31QS04-TE12L
D3002	AE004642	D28R03A040	DIODE,SCHOTTKY	NSQ03A04-TE16L
D3003	AE004643	D28R1QS040	DIODE	EC31QS04-TE12L
D3206	AE004643	D28R1QS040	DIODE	EC31QS04-TE12L
D3207	AE004643	D28R1QS040	DIODE	EC31QS04-TE12L
D3601	AE004937	D77R1A1R10	DIODE,VARISTA	AVRL161A1R1NT
D3602	AE004795	DE7RB5R62B	DIODE,ZENER	UDZS5.6B TE-17
D3603	AE004937	D77R1A1R10	DIODE,VARISTA	AVRL161A1R1NT
D3604	AE004793	DD7R60L400	DIODE,SCHOTTKY	RB160L-40-TE25
D3605	AE004793	DD7R60L400	DIODE,SCHOTTKY	RB160L-40-TE25
D3609	AE004794	DE7RB3R32B	DIODE,ZENER	UDZS3.3B TE-17
D3613	AE004794	DE7RB3R32B	DIODE,ZENER	UDZS3.3B TE-17
D3803	BZ410033	D28T21DQN4	DIODE,SCHOTTKY	21DQ04N-TA2B1
D3805	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
D3806	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
D3809	BZ410033	D28T21DQN4	DIODE,SCHOTTKY	21DQ04N-TA2B1
D3810	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
D3812	AE006060	D28T0ERB20	DIODE,RECTIFIER	10ERB20-TA1B2
D3813	AE007803	DE7RB8R22B	DIODE,ZENER	UDZS8.2B TE-17
D3814	BZ410033	D28T21DQN4	DIODE,SCHOTTKY	21DQ04N-TA2B1
D3815	AE004795	DE7RB5R62B	DIODE,ZENER	UDZS5.6B TE-17
D3817	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
D3818	AE006060	D28T0ERB20	DIODE,RECTIFIER	10ERB20-TA1B2
D3820	AE004643	D28R1QS040	DIODE	EC31QS04-TE12L
D4002	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
D4301	AE004795	DE7RB5R62B	DIODE,ZENER	UDZS5.6B TE-17
D4302	AE004795	DE7RB5R62B	DIODE,ZENER	UDZS5.6B TE-17
D4310	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
D5001	AE007801	DD7R20S300	DIODE,SCHOTTKY BARRIER	RB520S-30-TE61
D8508	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
D8509	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
D8510	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
		ICS		
IC101	AE007919	S5U801DM01	MEMORY DATA	OEC7133A
IC102	79097849	I9UF032290	IC	PST3229NR
IC104	AE007915	S5U801DE01	MEMORY DATA	BR24L64F-WE2
⚠IC301	AE007823	I03DP901E0	IC	LA4901-E
⚠IC302	AE007823	I03DP901E0	IC	LA4901-E
IC801	AE007829	I56K04A710	IC	R8J66604A71FP
IC2101	AE005610	IFSK0883C0	IC	MST9883C-LF-110
IC2301	AE000100	I06F030180	IC	M63018FP
IC2304	AD301770	I07E00358F	IC	BA10358F-E2
IC2601	AE000841	ICQK067070	IC	ZR36707TQC
⚠IC3001	AE004650	I07F097430	IC	BA9743AFV-E2
⚠IC3002	AE006395	I0GF91ZPH0	IC	PQ070XZ01ZPH
⚠IC3003	AE004653	I1KF98D050	IC	KIA78D05F
⚠IC3201	AE007825	I07F0C0WF0	IC	BA00BC0WFP-E2
⚠IC3202	AE007825	I07F0C0WF0	IC	BA00BC0WFP-E2
IC3601	AE004654	I1KF98D330	IC	KIA78D33F
IC3602	AE004654	I1KF98D330	IC	KIA78D33F
IC3604	AE001295	I0QJ045800	IC	NJM4580M(TE1)
IC3605	AE004805	I5PF099930	IC	SII9993CTG100
IC3606	AE007917	S5U801DE03	MEMORY DATA	BR24L02F-WE2
IC3607	AE004802	I1FF043340	IC	CS4334-KSZR
IC3608	AE007916	S5U801DE02	MEMORY DATA	BR24L32F-WE2
IC3611	AE006399	ICMF08RD20	IC	SST89E58RD2-40-C-TQJE
IC3612	AE003923	I5CF01G080	IC	SN74AHC1G08DCKR
⚠IC3802	AE004656	I1LF010100	IC	AL1010
⚠IC3803	AE007825	I07F0C0WF0	IC	BA00BC0WFP-E2
⚠IC3804	AE007827	I0GA9090R0	IC	PQ090RDA1SZH
⚠IC3805	AE004656	I1LF010100	IC	AL1010
⚠IC3806	AE007825	I07F0C0WF0	IC	BA00BC0WFP-E2
⚠IC3809	AE004656	I1LF010100	IC	AL1010
⚠IC3810	AE004648	I03D979950	IC	LA7995M-TLM
IC4001	AE003586	ICQK06762V	IC	ZR36762PQCG_V
IC4002	AE006854	I57J0L04F0	IC	BR24L04F-WE2
IC4005	AE006855	IFQJ0A6BE6	IC	EDS6416AHTA-6B-E
IC4007	AE007918	S5U801DF01	MEMORY DATA	SST39VF800A-70-4C-EKE

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
		ICS		
IC4301	AD301988	I0UF015010	IC	MM1501XNRE
IC4302	AD301988	I0UF015010	IC	MM1501XNRE
IC4303	AE001295	I0QJ045800	IC	NJM4580M(TE1)
IC4304	BZ611139	I0QF02534V	IC	NJM2534V(TE2)
IC4305	BZ611139	I0QF02534V	IC	NJM2534V(TE2)
IC5001	BZ611139	I0QF02534V	IC	NJM2534V(TE2)
IC6601	AE007828	I19FF4440G	IC	MSP4440G-QA-C13-100
IC7201	AE004660	IFKJ0LM850	IC	DTC34LM85AL
IC8101	AE004651	I0QF025840	IC	NJM2584AM(TE1)
IC8102	AE004800	I05FE13830	IC	TA1383FG
IC8103	AD301988	I0UF015010	IC	MM1501XNRE
IC8104	AE004651	I0QF025840	IC	NJM2584AM(TE1)
IC8150	AD301988	I0UF015010	IC	MM1501XNRE
IC8151	AD301988	I0UF015010	IC	MM1501XNRE
IC8152	AD301988	I0UF015010	IC	MM1501XNRE
IC8502	AE003584	I17F017530	IC	PCM1753DBQR
		TRANSISTORS		
Q101	BZ510021	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q105	BZ510026	TPYJC05001	COMPOUND TRANSISTOR	DTA124EKAT146
Q301	AE004662	T93A018020	TRANSISTOR,SILICON	2SD1802S/T-TL-E
Q302	AE004662	T93A018020	TRANSISTOR,SILICON	2SD1802S/T-TL-E
Q307	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q2101	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q2601	BZ510112	T67J1036K0	TRANSISTOR,SILICON	2SA1036KT146
Q2602	AE003592	T67J048TL0	TRANSISTOR,SILICON	2SA2048TL
Q2603	BZ510113	T27T030180	FET	2SK3018T106
Q2604	BZ510113	T27T030180	FET	2SK3018T106
Q2605	BZ510113	T27T030180	FET	2SK3018T106
Q2606	AE005938	TNRAC05003	COMPOUND TRANSISTOR	RT1N241C-T1
Q3001	AE004661	T77J011320	TRANSISTOR,SILICON	2SB1132T100(Q,R)
Q3002	BZ510020	TNYJB05001	COMPOUND TRANSISTOR	DTC114EKAT146
		TRANSISTORS		
Q3003	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q3004	BZ510108	TAAA1504SY	TRANSISTOR,SILICON	KTA1504S_Y_RTK
Q3005	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q3006	BZ510108	TAAA1504SY	TRANSISTOR,SILICON	KTA1504S_Y_RTK
⚠Q3007	AE004663	TJ5M081090	FET	TPC8109(T2LORION_Q)
⚠Q3008	AE004663	TJ5M081090	FET	TPC8109(T2LORION_Q)
Q3205	AE004661	T77J011320	TRANSISTOR,SILICON	2SB1132T100(Q,R)
Q3206	BZ510071	TNAAB05003	COMPOUND TRANSISTOR	KRC102SRTK
Q3207	AE004661	T77J011320	TRANSISTOR,SILICON	2SB1132T100(Q,R)
Q3208	BZ510071	TNAAB05003	COMPOUND TRANSISTOR	KRC102SRTK
Q3209	BZ510071	TNAAB05003	COMPOUND TRANSISTOR	KRC102SRTK
Q3603	BZ510113	T27T030180	FET	2SK3018T106
Q3604	BZ510113	T27T030180	FET	2SK3018T106
Q3605	BZ510113	T27T030180	FET	2SK3018T106
Q3606	BZ510113	T27T030180	FET	2SK3018T106
Q3607	BZ510113	T27T030180	FET	2SK3018T106
Q3608	BZ510081	TPYJA05001	COMPOUND TRANSISTOR	DTA143EKAT146
Q3609	BZ510045	TNYJD05001	COMPOUND TRANSISTOR	DTC144EKAT146
Q3610	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q3611	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q3612	BZ510045	TNYJD05001	COMPOUND TRANSISTOR	DTC144EKAT146
Q3613	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q3804	BZ510057	TAAT01281Y	TRANSISTOR,SILICON	KTA1281_Y
Q3805	BZ510020	TNYJB05001	COMPOUND TRANSISTOR	DTC114EKAT146
Q3806	BZ510021	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q3807	BZ510071	TNAAB05003	COMPOUND TRANSISTOR	KRC102SRTK
Q3808	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q3809	BZ510049	TPYJD05001	COMPOUND TRANSISTOR	DTA144EKAT146
Q3810	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q3811	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q3812	AE007842	TJ7M50P030	FET	RSS050P03_TB
Q3813	AE004665	TS3M000044	COMPOUND TRANSISTOR	CPH6312-TL-E
Q3814	AE004665	TS3M000044	COMPOUND TRANSISTOR	CPH6312-TL-E
Q3817	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q3818	BZ510113	T27T030180	FET	2SK3018T106
Q3819	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q3820	AE007841	TJ7I90P030	FET	RSS090P03_TB
Q4301	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q4302	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
		TRANSISTORS		
Q4303	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q4304	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q4305	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q4306	BZ510045	TNYJD05001	COMPOUND TRANSISTOR	DTC144EKAT146
Q4307	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q4308	BZ510107	TPAAA05001	COMPOUND TRANSISTOR	KRA101SRTK
Q4309	BZ510067	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
Q4401	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q4402	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q4403	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q4404	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q5002	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q5004	BZ510113	T27T030180	FET	2SK3018T106
Q5005	BZ510113	T27T030180	FET	2SK3018T106
Q8101	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q8102	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q8103	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q8104	BZ510071	TNAAB05003	COMPOUND TRANSISTOR	KRC102SRTK
Q8507	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
		COILS &TRANSFORMERS		
L301	AE004595	021404221M	COIL	21A 220 UH
L302	AE004595	021404221M	COIL	21A 220 UH
L804	AE007760	0216SD4R7J	COIL	4.7 UH
L2101	AE005284	0216S8220K	COIL	F 22 UH
L2102	AE005284	0216S8220K	COIL	F 22 UH
L2103	AE005285	0216S8470K	COIL	F 47 UH
L2106	AE007759	0216S45R6J	COIL	5.6 UH
L2107	AE005284	0216S8220K	COIL	F 22 UH
L3001	AE004593	021404101L	COIL	1A 100 UH
L3002	AE004593	021404101L	COIL	1A 100 UH
L3003	BZ310191	02167F2R2J	COIL	2.2 UH
L3004	BZ310150	02167E220K	COIL	R7 22 UH
L3601	AE004752	02D6000068	COIL,CHOKE	ACM2012D-900-2P-T00
L3602	AE004752	02D6000068	COIL,CHOKE	ACM2012D-900-2P-T00
L3603	AE004752	02D6000068	COIL,CHOKE	ACM2012D-900-2P-T00
L3604	AE004752	02D6000068	COIL,CHOKE	ACM2012D-900-2P-T00
L3801	AD301785	02167E100K	COIL	R6-1 10 UH
L3804	BZ310150	02167E220K	COIL	R7 22 UH
L3805	AE007757	021404470M	COIL	70A 47 UH
L3806	AE007757	021404470M	COIL	70A 47 UH
L3807	BZ310150	02167E220K	COIL	R7 22 UH
L3808	AE007757	021404470M	COIL	70A 47 UH
L4001	AE004601	0216SD1R5J	COIL	1.5 UH
L4301	AE005285	0216S8470K	COIL	F 47 UH
L4306	AE005284	0216S8220K	COIL	F 22 UH
L4307	AE005284	0216S8220K	COIL	F 22 UH
L4401	BZ310039	02167F220J	COIL	22 UH
L4402	AD301989	0216A6330J	COIL	33 UH
L5001	BZ310041	02167F101J	COIL	100 UH
L5002	BZ310040	02167F470J	COIL	47 UH
L6601	BZ310141	02167F100J	COIL	10 UH
L6602	BZ310141	02167F100J	COIL	10 UH
L6603	BZ310141	02167F100J	COIL	10 UH
L7201	AE005285	0216S8470K	COIL	F 47 UH
L7202	AE005285	0216S8470K	COIL	F 47 UH
L7203	AE005285	0216S8470K	COIL	F 47 UH
L8101	AE005284	0216S8220K	COIL	F 22 UH
L8102	AE005285	0216S8470K	COIL	F 47 UH
L8103	AE005285	0216S8470K	COIL	F 47 UH
L8150	AE005285	0216S8470K	COIL	F 47 UH
L8502	AE000828	02167F1R0K	COIL	1 UH
L8503	AE000828	02167F1R0K	COIL	1 UH
L8504	AE000828	02167F1R0K	COIL	1 UH
		JACKS		
J3601	AE002950	060J421037	RCA JACK	MTJ-032-05A-32-FE
J3602	AE002951	060J421030	RCA JACK	MTJ-032-05A-31-FE
⚠J3801	AE007899	060J602007	JACK DC	DC-487AG-PBT2.0-5.5A
⚠J4301	AE002426	0602131008	HEADPHONE JACK	HSJ0913-01-140
J4302	AE002950	060J421037	RCA JACK	MTJ-032-05A-32-FE
J4303	AE002951	060J421030	RCA JACK	MTJ-032-05A-31-FE
J4304	AE002950	060J421037	RCA JACK	MTJ-032-05A-32-FE

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.		Description
		JACKS		
J4305	AE002951	060J421030	RCA JACK	MTJ-032-05A-31-FE
J4306	AE002949	060J421036	RCA JACK	MTJ-032-05A-30-FE
J4401	AE004334	063D700009	JACK	MDC-070V-A_LF
J4402	AE002949	060J421036	RCA JACK	MTJ-032-05A-30-FE
J4403	AE002950	060J421037	RCA JACK	MTJ-032-05A-32-FE
J4404	AE002951	060J421030	RCA JACK	MTJ-032-05A-31-FE
J4405	AE002951	060J421030	RCA JACK	MTJ-032-05A-31-FE
J4406	AE005146	060J421043	RCA JACK	MTJ-032-05A-29-FE
J4407	AE005147	060J421044	RCA JACK	MTJ-032-05A-50-FE
J4408	AE002950	060J421037	RCA JACK	MTJ-032-05A-32-FE
J4409	AE002951	060J421030	RCA JACK	MTJ-032-05A-31-FE
J5001	AE003568	060J401102	RCA JACK	MSP-251V-05NI-FE-LF
		SWITCHES		
SW2201	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2202	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2203	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2204	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2206	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2208	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2209	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2251	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2252	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2253	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2254	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2255	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
		P.C.BOARD ASSEMBLIES		
PCB130	AE007906	A5U801D130	PCB ASS'Y	DMD005C
PCB270	AE007907	A5U801D270	PCB ASS'Y	CEE057A
PCB280	AE007908	A5U801D280	PCB ASS'Y	DED007C
PCBD20	AE007909	A5U801DD20	PCB ASS'Y	CME030A
PCBDA0	AE007910	A5U801DDA0	PCB ASS'Y	CEE067A
PCBDJ0	AE007911	A5U801DDJ0	PCB ASS'Y	CED011A
PCBDS0	AE007912	A5U801DDS0	PCB ASS'Y	CEE082A
		MISCELLANEOUS		
⚠AD001	AE007897	0411030096	AC,ADAPTER	11030096
B301	BZ310121	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B702	BZ310121	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B801	AE007762	024AC5600E	CORE,BEADS	BLM18BB600SN1D
B802	AE007762	024AC5600E	CORE,BEADS	BLM18BB600SN1D
B804	AE007762	024AC5600E	CORE,BEADS	BLM18BB600SN1D
B805	AE007762	024AC5600E	CORE,BEADS	BLM18BB600SN1D
B2101	AE007762	024AC5600E	CORE,BEADS	BLM18BB600SN1D
B2301	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B2601	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B2602	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B2603	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B2604	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B2605	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B3001	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B3201	AE007761	024AC5181J	CORE,BEADS	BLM18PG181SN1D
B3202	AE007761	024AC5181J	CORE,BEADS	BLM18PG181SN1D
B3203	AE007761	024AC5181J	CORE,BEADS	BLM18PG181SN1D
B3204	AE007761	024AC5181J	CORE,BEADS	BLM18PG181SN1D
B3205	AE007761	024AC5181J	CORE,BEADS	BLM18PG181SN1D
B3206	AE007761	024AC5181J	CORE,BEADS	BLM18PG181SN1D
B3207	AE007761	024AC5181J	CORE,BEADS	BLM18PG181SN1D
B3601	AE004602	024HC36001	CORE,BEADS	HCB2012K-600T25
B3602	AE004602	024HC36001	CORE,BEADS	HCB2012K-600T25
B3603	AE004602	024HC36001	CORE,BEADS	HCB2012K-600T25
B3604	AE004602	024HC36001	CORE,BEADS	HCB2012K-600T25
B3608	AE004602	024HC36001	CORE,BEADS	HCB2012K-600T25
B3609	AE004602	024HC36001	CORE,BEADS	HCB2012K-600T25
B3610	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B3611	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B3801	BZ310121	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B3802	BZ310129	024HT03564	CORE,BEADS	W4BRH3.5X6X1.0
B3803	BZ310129	024HT03564	CORE,BEADS	W4BRH3.5X6X1.0
B3805	BZ310121	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B3807	AE007761	024AC5181J	CORE,BEADS	BLM18PG181SN1D
B3811	AE007761	024AC5181J	CORE,BEADS	BLM18PG181SN1D
B3812	AE007761	024AC5181J	CORE,BEADS	BLM18PG181SN1D

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.		Description
		MISCELLANEOUS		
B3813	AE007761	024AC5181J	CORE,BEADS	BLM18PG181SN1D
B3814	AE007761	024AC5181J	CORE,BEADS	BLM18PG181SN1D
B4001	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B4002	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B4003	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B4004	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B4005	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B4006	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B4007	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B4008	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B4009	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B4010	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B4301	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4302	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4303	AE007762	024AC5600E	CORE,BEADS	BLM18BB600SN1D
B4304	AE007762	024AC5600E	CORE,BEADS	BLM18BB600SN1D
B4305	AE007762	024AC5600E	CORE,BEADS	BLM18BB600SN1D
B5001	BZ310121	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B8503	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
BT001	AE005640	141R004016	BATTERY,MANGAN	GR03X-SP2
BT002	AE005640	141R004016	BATTERY,MANGAN	GR03X-SP2
⚠CD501	AE007900	06C3242401	CORD,CONNECTOR	C3242401
⚠CD505	AE004631	120G119903	CORD,SET AC	0G119903
CD701	AE007901	06C32G2204	CORD,CONNECTOR	C32G2204
CD801	AE007786	122H0T0801	CORD,JUMPER	2H0T0801
CD802	AE007787	122H0U0802	CORD,JUMPER	2H0U0802
CP101	AD300752	069S250629	CONNECTOR PCB SIDE	A2001WV2-5P
CP102	BZ614213	069S2A0629	CONNECTOR PCB SIDE	A2001WV2-10P
CP103	BZ614242	069S260629	CONNECTOR PCB SIDE	A2001WV2-6P
CP301	AD301045	069S140419	CONNECTOR PCB SIDE	A2502WV2-4P
CP801	AE007769	069EVT3030	CONNECTOR PCB SIDE	00_6232_029_006_800+
CP802	AE006528	069EVU3030	CONNECTOR PCB SIDE	00_6232_030_006_800+
CD2200	AE007773	06C3234501	CORD,CONNECTOR	C3234501
CD2202	AE007775	06C3251802	CORD,CONNECTOR	C3251802
CD2251	AE007772	06C3220704	CORD,CONNECTOR	C3220704
CD2601	AE007905	122H0O1701	CORD,JUMPER	2H0O1701
CD3601	AE007771	06C31K3201	CORD,CONNECTOR	C31K3201
⚠CD3804	AE007776	06C32B1801	CORD,CONNECTOR	C32B1801
CD7201	AE007902	06D420003A	CORD,EIS CONNECTOR	D420003A
CP2200	BZ614350	069S230629	CONNECTOR PCB SIDE	A2001WV2-3P
CP2251	AE005287	069S220639	CONNECTOR PCB SIDE	A2001WR2-2P
CP2301	AE006524	069EV93030	CONNECTOR PCB SIDE	00_6232_009_006_800+
CP2302	AE006525	069EVC3030	CONNECTOR PCB SIDE	00_6232_012_006_800+
CP2601	AE003571	069GYOT119	CONNECTOR PCB SIDE	09-5000-024-001-001
CP3201	BZ614214	069S2B0629	CONNECTOR PCB SIDE	A2001WV2-11P
CP3601	AE004763	069HYJ3010	CONNECTOR PCB SIDE	DC1R019JDA
CP3604	BZ614239	069S290639	CONNECTOR PCB SIDE	A2001WR2-9P
⚠CP3802	AD301998	069S240629	CONNECTOR PCB SIDE	A2001WV2-4P
⚠CP3803	AD301796	069S280629	CONNECTOR PCB SIDE	A2001WV2-8P
CP4301	AE005152	069S1K0019	CONNECTOR PCB SIDE	A2501WV2-20P
CP4302	AE007768	0694S15017	CONNECTOR PCB SIDE	1-1734344-1
CP4303	AE004336	069S2G0629	CONNECTOR PCB SIDE	A2001WV2-16P
CP4401	AE006528	069EVU3030	CONNECTOR PCB SIDE	00_6232_030_006_800+
CP5001	AE007769	069EVT3030	CONNECTOR PCB SIDE	00_6232_029_006_800+
CP5002	AD300752	069S250629	CONNECTOR PCB SIDE	A2001WV2-5P
CP7201	AE004610	069S2K0679	CONNECTOR PCB SIDE	A2006WR0-2X10P
CUS811	BZ710279	800WFAA006	CUSHION A	
CUS911	BZ710149	800WFAA008	CUSHION C	
CUSD21	BZ710149	800WFAA008	CUSHION C	
⚠F3001	AE004626	083LA05007	FUSE	1206FA5A-T
⚠F3801	AE004624	0835C05003	MICRO FUSE	20N_5000FS
NR801	AE006386	110P4000M4	R,NETWORK	4D03WGJ0000T5E
NR802	AE005937	110P4470M4	R,NETWORK	4D03WGJ0470T5E
NR803	AE005937	110P4470M4	R,NETWORK	4D03WGJ0470T5E
NR804	AE005937	110P4470M4	R,NETWORK	4D03WGJ0470T5E
NR805	AE005937	110P4470M4	R,NETWORK	4D03WGJ0470T5E
NR806	AE005937	110P4470M4	R,NETWORK	4D03WGJ0470T5E
NR807	AE005937	110P4470M4	R,NETWORK	4D03WGJ0470T5E
NR2101	AE004680	110P4101M4	R,NETWORK	4D03WGJ0101T5E
NR2102	AE004680	110P4101M4	R,NETWORK	4D03WGJ0101T5E
NR2103	AE004680	110P4101M4	R,NETWORK	4D03WGJ0101T5E

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
		MISCELLANEOUS		
NR2104	AE004680	110P4101M4	R,NETWORK	4D03WGJ0101T5E
NR2105	AE004680	110P4101M4	R,NETWORK	4D03WGJ0101T5E
NR2106	AE004680	110P4101M4	R,NETWORK	4D03WGJ0101T5E
NR7201	AE005599	110P4220M4	R,NETWORK	4D03WGJ0220T5E
NR7202	AE005599	110P4220M4	R,NETWORK	4D03WGJ0220T5E
OS2202	AE004623	0773071006	REMOTE RECEIVER	RPM7138-SH8
⚠SP301	AE007903	070Y836005	SPEAKER	S0407N04-B
TM101	AE007781	076D0LT010	TRANSMITTER	ORV205N1505026-J
TR3801	BZ310181	02A6B2E0A1	CORE,FERRITE	HF70T22*10*14
TR3805	BZ310118	02AHB9A972	CORE,FERRITE	W5T29X7.5X19
⚠TU4401	AE006829	0162300045	RF UNIT	115-V-LA35AR
⚠V2301	AE007904	09ES117001	LCD	LC171W03
V2302	AE007898	04930001AV	CONVERTER DC/DC	YPNL-T008A
X101	AE004780	100WT01611	CRYSTAL	HC-49/U-S
X801	AE007784	100YT05401	CRYSTAL	FCX-03
X3601	AE004779	100CT01101	CRYSTAL	HC-49/U-S
X4001	AD301803	100BT02701	CRYSTAL	HC-49U/S
X6601	BZ613042	100CT01803	CRYSTAL	HC-49/U-S
X8101	AE005441	100DA3R529	CRYSTAL	HC-49/U
X8102	AE004348	1002R01502	CERAMIC OSCILLATOR	CSBLA503KECZF30-B0

RESISTOR

RC..... CARBON RESISTOR

CAPACITORS

CC..... CERAMIC CAPACITOR
CE..... ALUMI ELECTROLYTIC CAPACITOR
CP..... POLYESTER CAPACITOR
CPP..... POLYPROPYLENE CAPACITOR
CPL..... PLASTIC CAPACITOR
CMP..... METAL POLYESTER CAPACITOR
CMPL..... METAL PLASTIC CAPACITOR
CMPP..... METAL POLYPROPYLENE CAPACITOR

TOSHIBA CORPORATION
1-1, SHIBAURA 1-CHOME, MINATO-KU, TOKYO 105-8001, JAPAN